Galaxy VX

480 V UPS System

Technical Specifications

Latest updates are available on the Schneider Electric website

8/2023

www.se.com

Legal Information

Find the manuals here:
Trouvez les manuels ici:
Encuentre los manuales aquí:

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

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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.

FCC Statement

NOTE: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Safety Precautions

⚠DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

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

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

⚠DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

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

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

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

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

⚠DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

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

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

⚠ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

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

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

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

NOTICE

RISK OF OVERHEATING

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

Failure to follow these instructions can result in equipment damage.

NOTICE

RISK OF EQUIPMENT DAMAGE

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

Failure to follow these instructions can result in equipment damage.

Technical Data

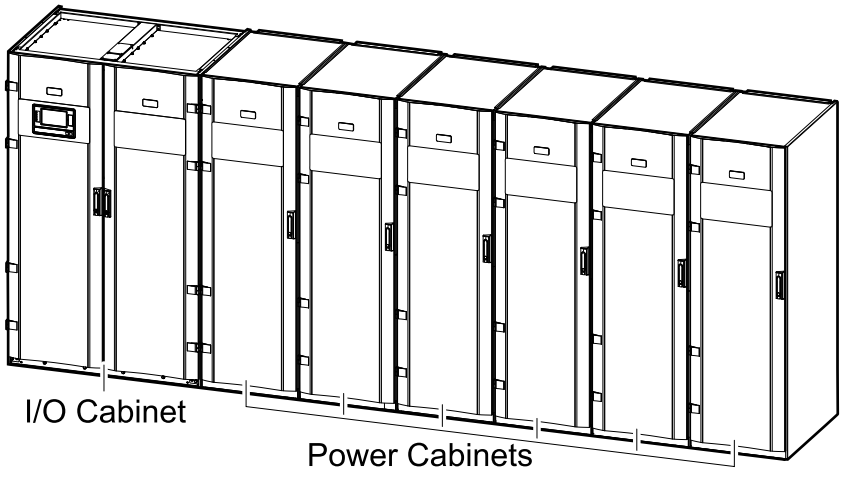
System Overview

Each Galaxy VX UPS consists of the following components:

- An I/O cabinet for wield wiring containing the static switch, a backfeed breaker BF2[1], and the user interface.
- A number of 250 kW power cabinets containing the power electronics.

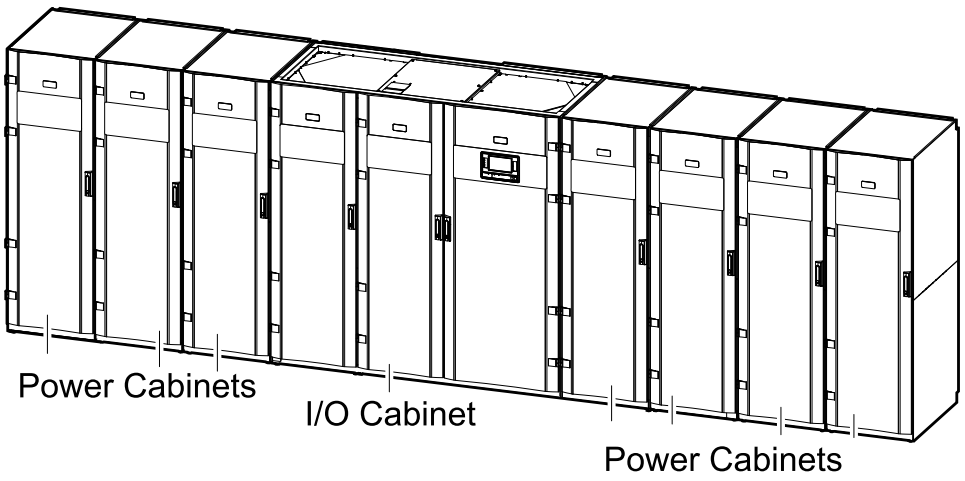
UPSs with 1250 kW I/O Cabinet

The 1250 kW I/O cabinet is used for UPS systems from a minimum configuration of 500 kW with two power cabinets to a maximum configuration of 1250 kW N+1 with six power cabinets. The I/O cabinet is placed to the left and two to six power cabinets (depending on system size) are placed to the right. The image below shows the maximum configuration.



UPSs with 1500 kW I/O Cabinet

The 1500 kW I/O cabinet is used for UPS systems from a minimum configuration of 500 kW with two power cabinets to a maximum configuration of 1500 kW N+1 with seven power cabinets. The image below shows the maximum configuration.



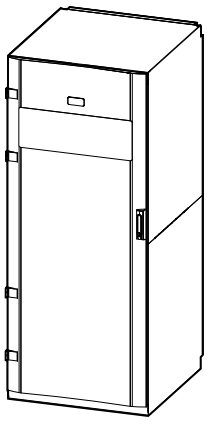
1. For a 1250 kW I/O cabinet, the BF2 can be installed internal in the UPS or externally in the switchgear.

Maintenance Bypass Cabinet for UPSs with a Maximum Rating of 750 kW

The maintenance bypass cabinet contains the following breakers to isolate the UPS during maintenance:

- Static switch input breaker (SSIB)
- Maintenance bypass breaker (MBB)
- Unit output breaker (UOB)

Maintenance Bypass Cabinet



Model List

UPSs with 1250 kW I/O Cabinet

- Galaxy VX 500 kW, 480 V, start-up 5x8 (GVX500K500NGS)
- Galaxy VX 500 kW scalable to 750 kW 480 V, start-up 5x8 (GVX500K750NGS)
- Galaxy VX 500 kW scalable to 1000 kW 480 V, start-up 5x8 (GVX500K1000NGS)
- Galaxy VX 500 kW scalable to 1250 kW 480 V, start-up 5x8 (GVX500K1250NGS)
- Galaxy VX 625 kW, 480 V, start-up 5x8 (GVX625K625NGS)
- Galaxy VX 625 kW scalable to 1000 kW 480 V, start-up 5x8 (GVX625K1000NGS)
- Galaxy VX 500 kW N+1 redundant UPS 480 V, start-up 5x8 (GVX750K500NGS)
- Galaxy VX 750 kW, 480 V, start-up 5x8 (GVX750K750NGS)
- Galaxy VX 750 kW scalable to 1000 kW 480 V, start-up 5x8 (GVX750K1000NGS)
- Galaxy VX 750 kW scalable to 1250 kW 480 V, start-up 5x8 (GVX750K1250NGS)
- Galaxy VX 800 kW, 480 V, start-up 5x8 (GVX800K800NGS)
- Galaxy VX 750 kW N+1 redundant UPS 480 V, start-up 5x8 (GVX1000K750NGS)
- Galaxy VX 1000 kW, 480 V, start-up 5x8 (GVX1000K1000NGS)
- Galaxy VX 1000 kW scalable to 1250 kW 480 V, start-up 5x8 (GVX1000K1250NGS)
- Galaxy VX 1100 kW, 480 V, Start-up 5x8 (GVX1100K1100NGS)
- Galaxy VX 1000 kW N+1 redundant UPS 480 V, start-up 5x8 (GVX1250K1000NGS)
- Galaxy VX 1250 kW, 480 V, start-up 5x8 (GVX1250K1250NGS)
- Galaxy VX 1100 kW N+1 Redundant UPS 480 V, Start up 5x8 (GVX1500K1100NGS)
- Galaxy VX 1250 kW N+1 Redundant UPS 480 V, start-up 5x8 (GVX1500K1250NGS)
- Galaxy VX 1250 kW I/O Cabinet without Backfeed protection on Mains 2 (GVXI1250KDNBF2)[2]. Requires ordering the 250 kW power cabinets separately.

2. Backfeed protection can be installed internally in the 1250 kW I/O cabinet with the optional backfeed kit (GVXOPT001) (ordered separately), or installed externally upstream of the UPS in the switchgear.

UPSs with 1500 kW I/O Cabinet

- Galaxy VX 500 kW 480 V scalable to 1500 kW, start-up 5x8 (GVX500K1500GS)
- Galaxy VX 750 kW 480 V scalable to 1500 kW, start-up 5x8 (GVX750K1500GS)
- Galaxy VX 1000 kW scalable to 1500 kW 480 V, start-up 5x8 (GVX1000K1500GS)
- Galaxy VX 1250 kW scalable to 1500 kW 480 V, start-up 5x8 (GVX1250K1500GS)
- Galaxy VX 1500 kW 480 V, start-up 5x8 (GVX1500K1500GS)
- Galaxy VX 1500 kW N+1 Redundant UPS 480 V, start-up 5x8 (GVX1750K1500GS)

Overview of Configurations

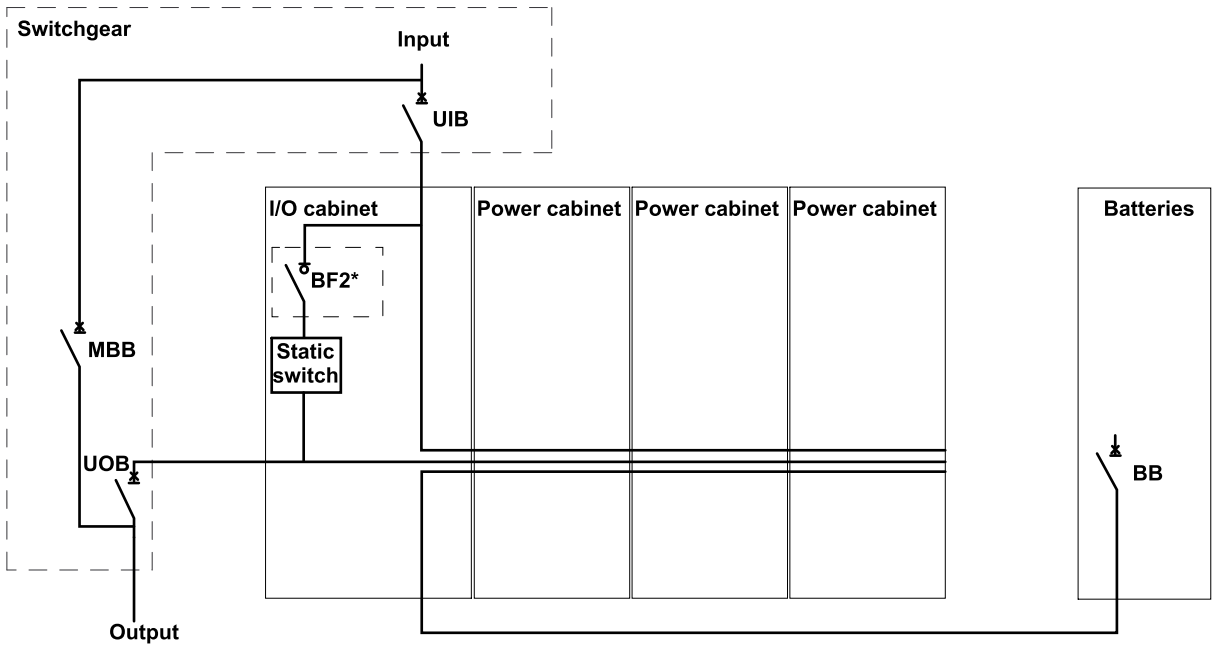
Breakers in the System

UIB	Unit input breaker
SSIB	Static switch input breaker
BB	Battery breaker
MBB	Maintenance bypass breaker
UOB	Unit output breaker
BF2	Backfeed protection switch

Overview of UPSs with 1250 kW I/O Cabinet - Single Utility/Mains

NOTE: Depending on your chosen configuration, the backfeed breaker BF2 (marked with * in the illustration) can be preinstalled in the UPS, delivered as an optional backfeed kit GVXOPT001 to be installed in the UPS, or installed upstream of the UPS in the switchgear.

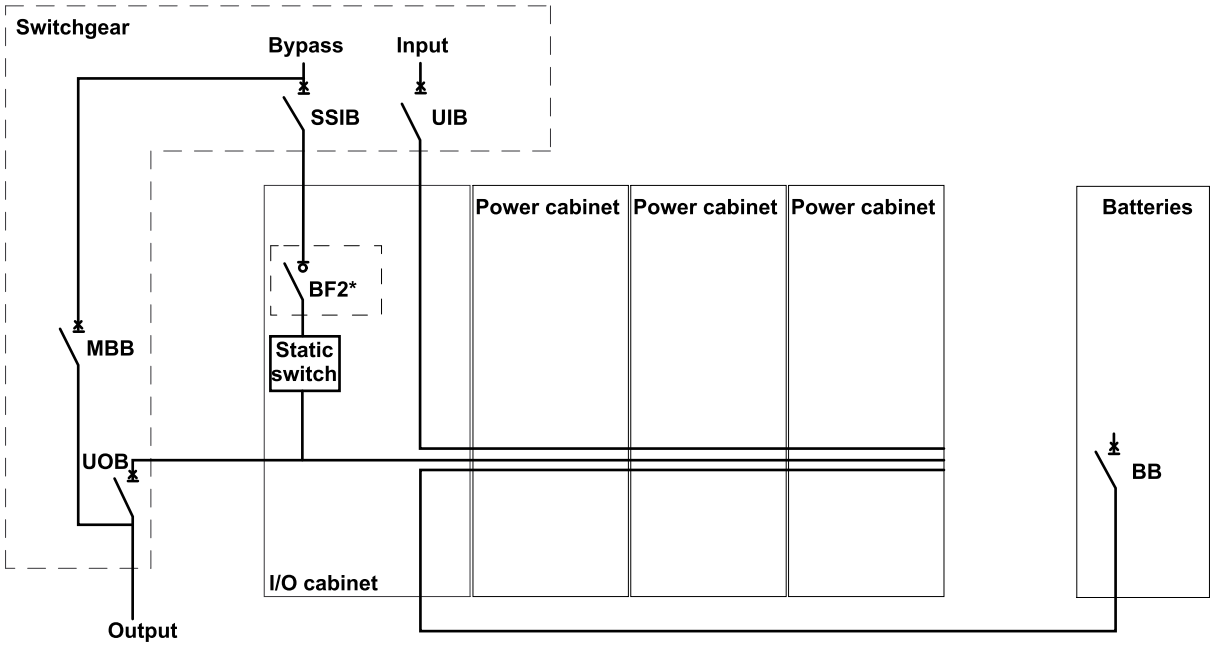
The illustration shows a 750 kW UPS. The principle is the same for the other UPSs with the 1250 kW I/O cabinet.



Overview of UPSs with 1250 kW I/O Cabinet - Dual Utility/Mains

NOTE: Depending on your chosen configuration, the backfeed breaker BF2 (marked with * in the illustration) can be preinstalled in the UPS, delivered as an optional backfeed kit GVXOPT001 to be installed in the UPS, or installed upstream of the UPS in the switchgear.

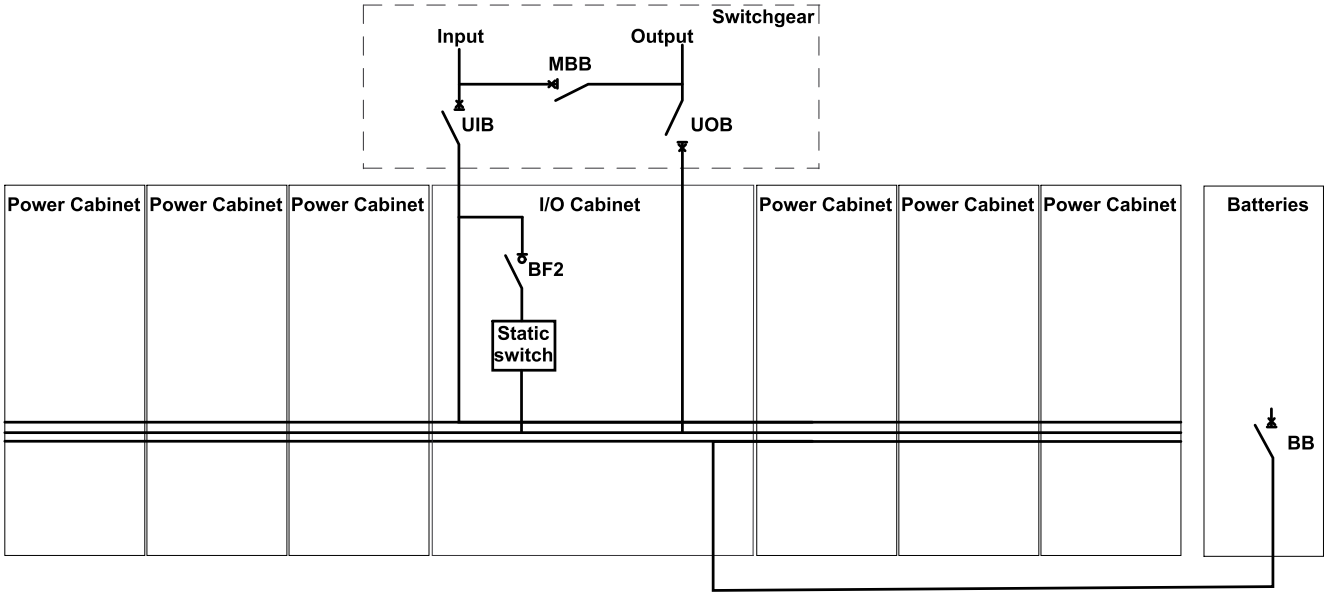
The illustration shows a 750 kW UPS. The principle is the same for the other UPSs with the 1250 kW I/O cabinet.



Overview of UPSs with 1500 kW I/O Cabinet – Single Utility/Mains

The illustration shows a 1500 kW UPS. The principle is the same for the other UPSs with the 1500 kW I/O cabinet.

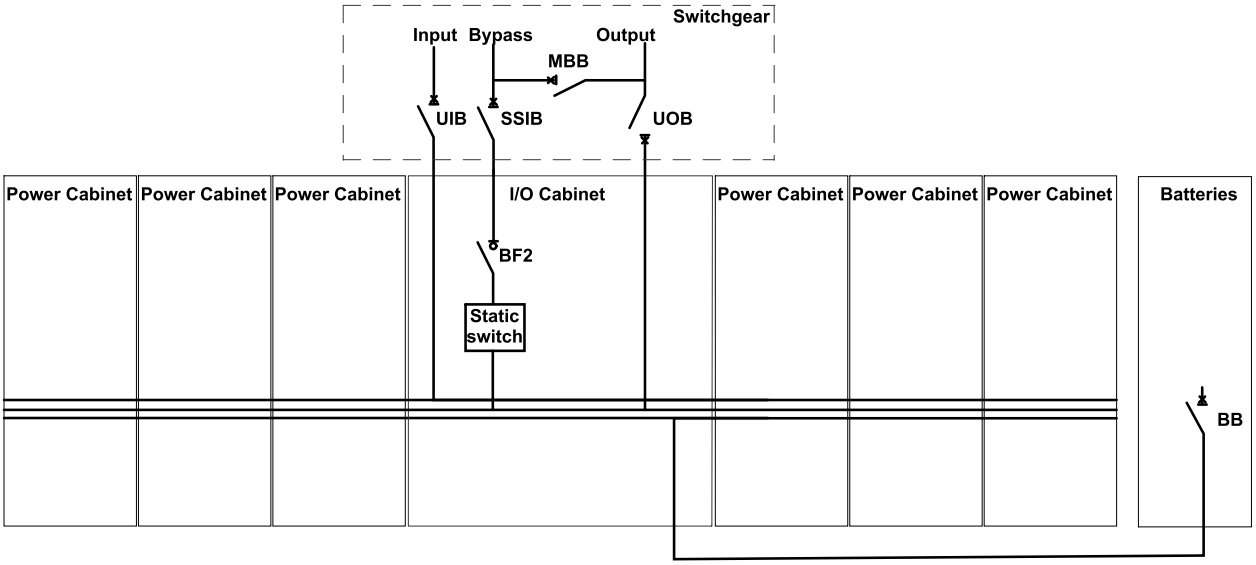
Galaxy VX 1500 kW UPS



Overview of UPSs with 1500 kW I/O Cabinet – Dual Utility/Mains

The illustration shows a 1500 kW UPS. The principle is the same for the other UPSs with the 1500 kW I/O cabinet.

Galaxy VX 1500 kW UPS



Parallel System

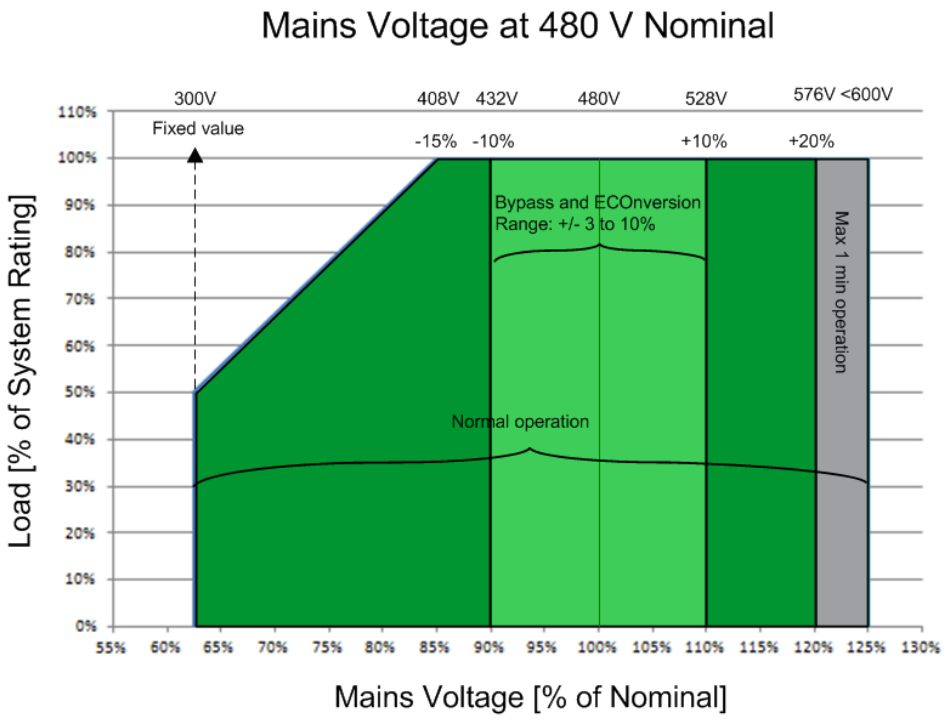
Galaxy VX can support up to 4+0 UPSs in parallel for capacity and up to 4+1 UPSs in parallel for redundancy.

NOTE: Note that for systems over 4 MW it can be difficult to find appropriate breakers/switches in the correct size for the switchgear.

Input Power Factor

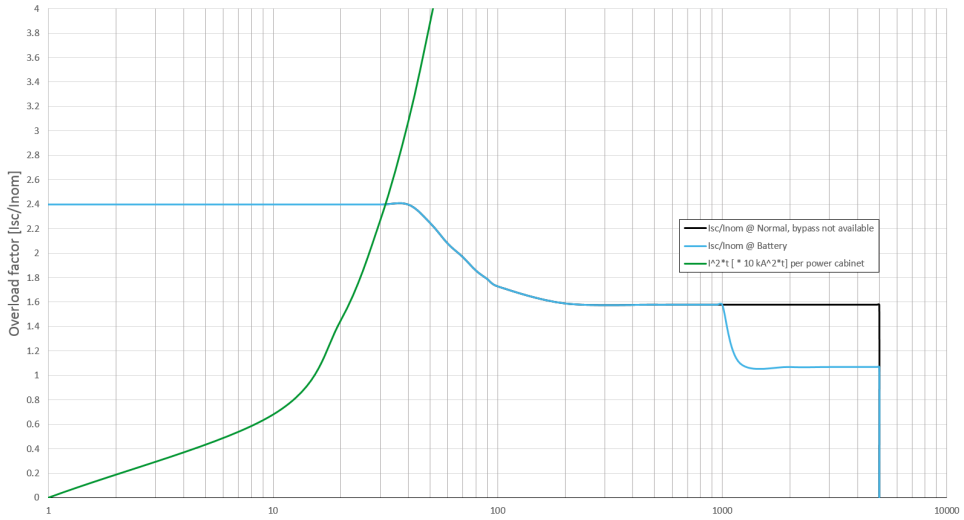
	500 kW	625 kW	750 kW	800 kW	1000 kW	1100 kW	1250 kW	1500 kW
25% load	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
50% load	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
75% load	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
100% load	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99

Input Voltage Window



Inverter Short–Circuit Capabilities (Bypass not Available)

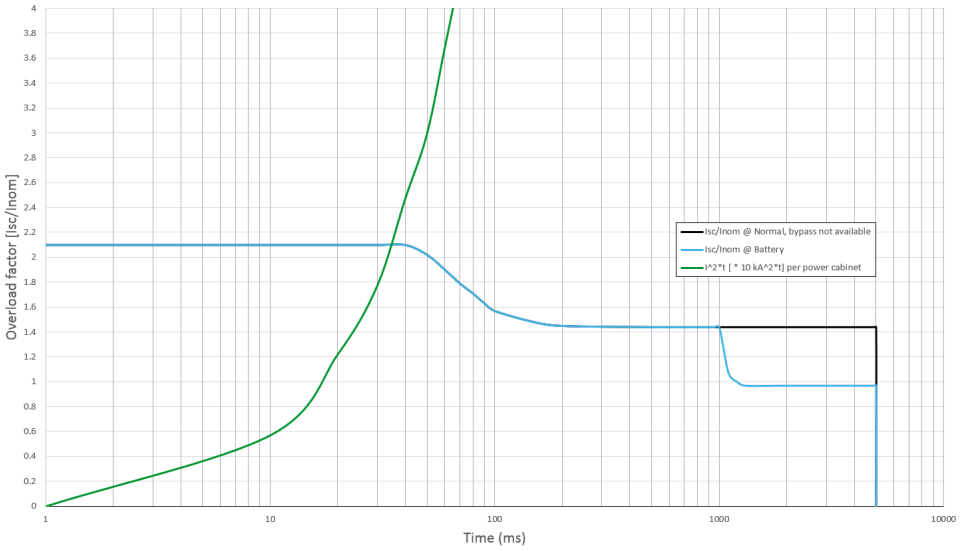
IK1 – Short-Circuit between a Phase and Neutral



480 V IK1

S [kVA]	Ik10ms [A] Normal operation /Battery operation	Ik30ms [A] Normal operation /Battery operation	Ik100ms [A] Normal operation /Battery operation	Ik500ms [A] Normal operation /Battery operation	Ik1s [A] Normal operation /Battery operation	Ik5s [A] Normal operation /Battery operation	I^2 t total [A^2s] Normal operation /Battery operation
250	– /810	– /810	– /570	– /290	– /290	– /290	– /493600
500	– /1620	– /1620	– /1140	– /580	– /580	– /580	– /1974400
750	– /2430	– /2430	– /1710	– /870	– /870	– /870	– /4442400
1000	– /3240	– /3240	– /2280	– /1160	– /1160	– /1160	– /7897600
1250	– /4050	– /4050	– /2850	– /1450	– /1450	– /1450	– /12340000
1500	– /4860	– /4860	– /3420	– /1740	– /1740	– /1740	– /17769600

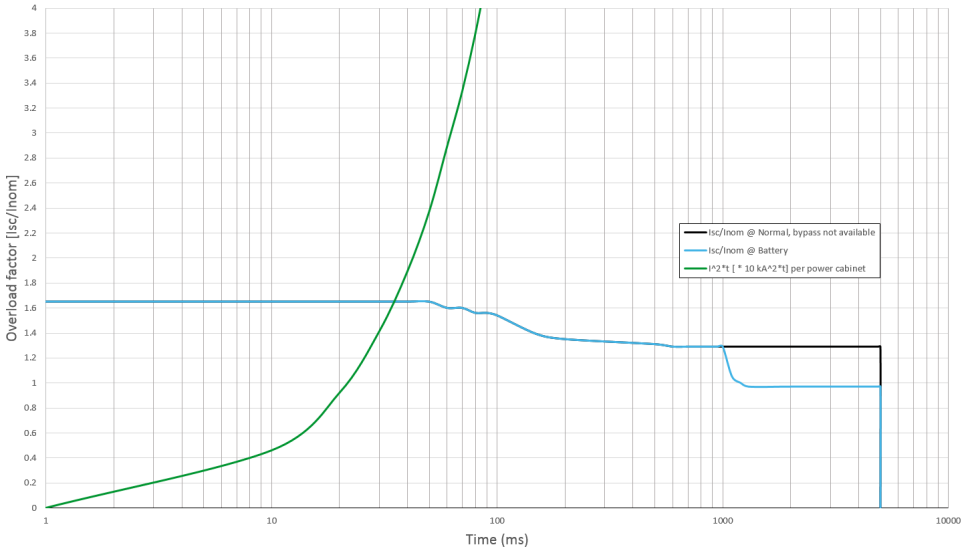
IK2 – Short-Circuit between Two Phases



480 V IK2

S [kVA]	Ik10ms [A] Normal operation /Battery operation	Ik30ms [A] Normal operation /Battery operation	Ik100ms [A] Normal operation /Battery operation	Ik500ms [A] Normal operation /Battery operation	Ik1s [A] Normal operation /Battery operation	Ik5s [A] Normal operation /Battery operation	I^2 t total [A^2s] Normal operation /Battery operation
250	790 /790	770 /770	550 /550	430 /280	430 /280	280 /280	606450 /460820
500	1580 /1580	1540 /1540	1100 /1100	860 /560	860 /560	560 /560	2425800 /1843280
750	2370 /2370	2310 /2310	1650 /1650	1290 /840	1290 /840	840 /840	5458050 /4147380
1000	3160 /3160	3080 /3080	2200 /2200	1720 /1120	1720 /1120	1120 /1120	9703200 /7373120
1250	3950 /3950	3850 /3850	2750 /2750	2150 /1400	2150 /1400	1400 /1400	15161250 /11520500
1500	4740 /4740	4620 /4620	3300 /3300	2580 /1680	2580 /1680	1680 /1680	21832200 /16589520

IK3 – Short-Circuit between All Three Phases



480 V IK3

S [kVA]	Ik10ms [A] Normal operation /Battery operation	Ik30ms [A] Normal operation /Battery operation	Ik100ms [A] Normal operation /Battery operation	Ik500ms [A] Normal operation /Battery operation	Ik1s [A] Normal operation /Battery operation	Ik5s [A] Normal operation /Battery operation	$I^2 t$ total [A^2s] Normal operation /Battery operation
250	670 /660	670 /660	610 /610	440 /440	360 /440	300 /300	580600 /589380
500	1340 /1320	1340 /1320	1220 /1220	880 /880	720 /880	600 /600	2322400 /2357520
650	1742 /1716	1742 /1716	1586 /1586	1144 /1144	936 /1144	780 /780	3924856 /3984209
1000	2680 /2640	2680 /2640	2440 /2440	1760 /1760	1440 /1760	1200 /1200	9289600 /9430080
1250	3350 /3300	3350 /3300	3050 /3050	2200 /2200	1800 /2200	1500 /1500	14515000 /14734500
1500	4020 /3960	4020 /3960	3660 /3660	2640 /2640	2160 /2640	1800 /1800	20901600 /21217680

Efficiency for UPSs with 1250 kW I/O Cabinet

Efficiency for a 500 kW UPS

	Normal operation	ECO mode	eConversion	Battery operation
Voltage (V)	**480**	**480**	**480**	**480**
25% load	94.9%	97.3%	96.9%	96.6%
50% load	95.9%	98.4%	98.2%	96.7%
75% load	96.0%	98.8%	98.7%	96.3%
100% load	95.9%	99.0%	98.9%	95.9%

Efficiency for a 625 kW UPS

	Normal operation	ECO mode	eConversion	Battery operation
Voltage (V)	**480**	**480**	**480**	**480**
25% load	95.0%	97.5%	97.1%	95.8%
50% load	96.2%	98.6%	98.4%	96.2%
75% load	96.3%	98.8%	98.7%	96.3%
100% load	96.2%	99.0%	98.9%	96.2%

Efficiency for a 750 kW UPS

	Normal operation	ECO mode	eConversion	Battery operation
Voltage (V)	**480**	**480**	**480**	**480**
25% load	95.4%	97.9%	97.7%	96.5%
50% load	96.1%	98.6%	98.5%	96.6%
75% load	96.0%	98.8%	98.7%	96.2%
100% load	95.8%	98.9%	98.9%	95.8%

Efficiency for an 800 kW UPS

	Normal operation	ECO mode	eConversion	Battery operation
Voltage (V)	**480**	**480**	**480**	**480**
25% load	95.2%	98.7%	97.4%	96.9%
50% load	96.2%	98.9%	98.5%	96.6%
75% load	96.1%	98.9%	98.8%	96.8%
100% load	96.3%	99.0%	99.1%	96.3%

Efficiency for a 1000 kW UPS

	Normal operation	ECO mode	eConversion	Battery operation
Voltage (V)	**480**	**480**	**480**	**480**
25% load	95.6%	98.1%	97.9%	96.6%
50% load	96.3%	98.8%	98.7%	96.7%
75% load	96.2%	99.0%	98.9%	96.3%
100% load	96.0%	99.1%	99.1%	95.9%

Efficiency for a 1100 kW UPS

	Normal operation	ECO mode	eConversion	Battery operation
Voltage (V)	**480**	**480**	**480**	**480**
25% load	95.8%	98.3%	97.8%	96.3%
50% load	96.4%	98.9%	98.7%	96.5%
75% load	96.3%	99.0%	98.9%	96.4%
100% load	96.1%	99.1%	99.0%	96.1%

Efficiency for a 1250 kW UPS

	Normal operation	ECO mode	eConversion	Battery operation
Voltage (V)	**480**	**480**	**480**	**480**
25% load	95.8%	98.3%	97.9%	96.6%
50% load	96.4%	98.9%	98.7%	96.6%
75% load	96.2%	99.1%	99.0%	96.3%
100% load	96.0%	99.1%	99.1%	96.1%

Efficiency for UPSs with 1500 kW I/O Cabinet

Efficiency for a 500 kW UPS

	Normal operation	ECO mode	eConversion	Battery operation
Voltage (V)	**480**	**480**	**480**	**480**
25% load	95.8%	98.5%	98.2%	95.9%
50% load	96.4%	99.1%	99.1%	96.4%
75% load	96.2%	99.2%	99.2%	96.0%
100% load	96.1%	99.2%	99.2%	95.6%

Efficiency for a 750 kW UPS

	Normal operation	ECO mode	eConversion	Battery operation
Voltage (V)	**480**	**480**	**480**	**480**
25% load	95.9%	98.5%	98.2%	95.9%
50% load	96.5%	99.1%	99.0%	96.4%
75% load	96.3%	99.2%	99.2%	96.0%
100% load	96.0%	99.2%	99.2%	95.6%

Efficiency for a 1000 kW UPS

	Normal operation	ECO mode	eConversion	Battery operation
Voltage (V)	**480**	**480**	**480**	**480**
25% load	95.9%	98.6%	98.2%	95.9%
50% load	96.5%	99.1%	99.0%	96.4%
75% load	96.4%	99.2%	99.2%	96.0%
100% load	95.9%	99.2%	99.2%	95.6%

Efficiency for a 1250 kW UPS

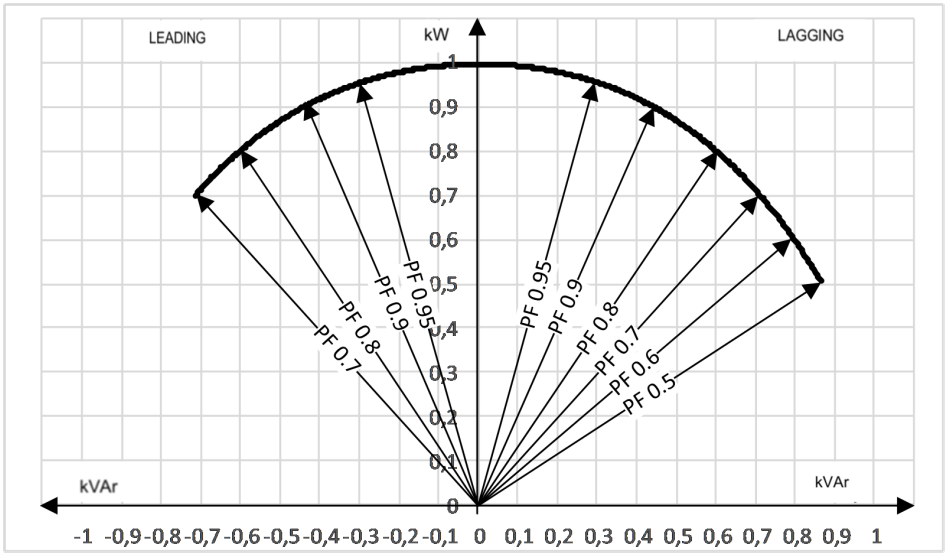
	Normal operation	ECO mode	eConversion	Battery operation
Voltage (V)	**480**	**480**	**480**	**480**
25% load	96.0%	98.7%	98.3%	95.9%
50% load	96.6%	99.2%	99.1%	96.4%
75% load	96.4%	99.3%	99.3%	96.0%
100% load	96.0%	99.3%	99.3%	95.6%

Efficiency for a 1500 kW UPS

	Normal operation	ECO mode	eConversion	Battery operation
Voltage (V)	**480**	**480**	**480**	**480**
25% load	96.0%	98.7%	98.3%	95.9%
50% load	96.5%	99.1%	99.1%	96.4%
75% load	96.3%	99.3%	99.3%	96.1%
100% load	96.0%	99.3%	99.3%	95.7%

Derating Due to Load Power Factor

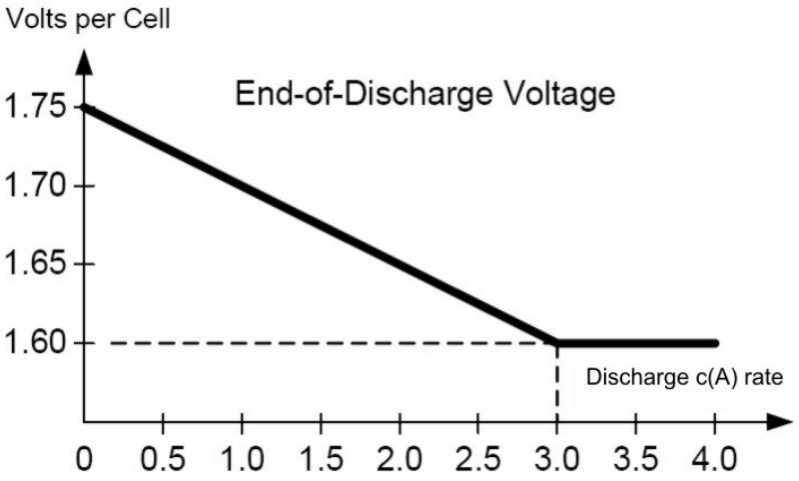
0.7 leading to 0.5 lagging without derating.



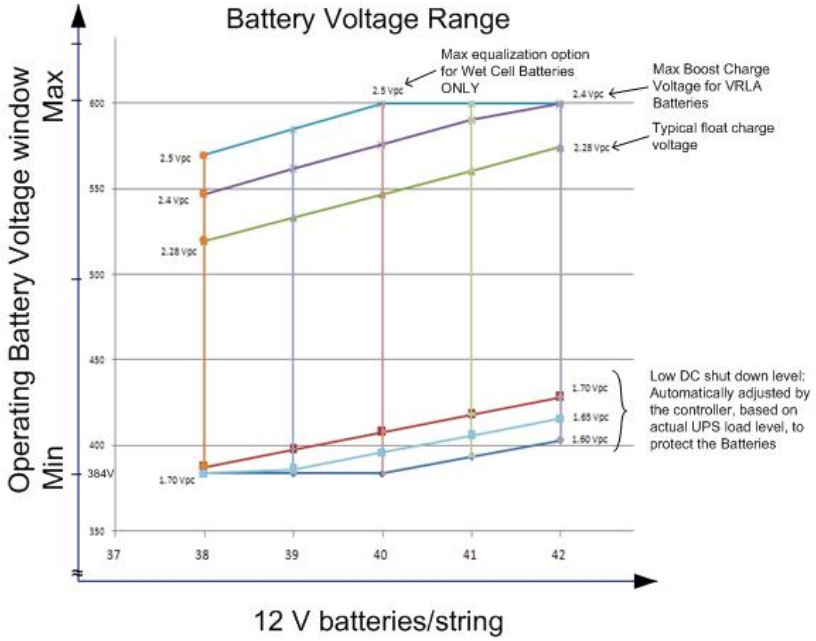
Batteries (VRLA)

End of Discharge Voltage

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



Battery Voltage Range (VRLA)



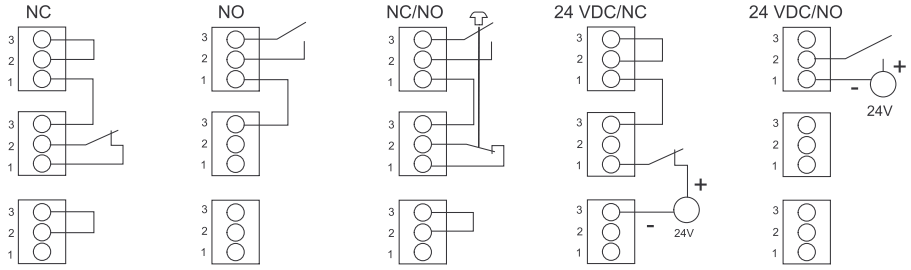
Compliance

Safety	UL 1778 5th edition
EMC/EMI/RFI	IEC 62040-2: 2016, 3rd edition Uninterruptible Power Systems (UPS) - Part 2: Electromagnetic compatibility (EMC) requirements C2 FCC 15B, class A
Performance	IEC 62040-3: 2011-03, 2nd edition Uninterruptible Power Systems (UPS) - Part 3: Method of specifying the performance and test requirements
Environmental	IEC 62040-4: 2013-04, 1st edition Uninterruptible Power Systems (UPS) - Part 4: Environmental aspects – Requirements and reporting
Markings	UL1778 Listing and CSA C22.2 NO.107.3
Transportation	ISTA 2B IEC 60721-4-2 Level 2M2
Seismic	OSHPD, IBC2012 and CBC2013 to S_{DS} = 1.83 g
Overvoltage category	III
Earthing system	TN, TT, IT
Protective class	I
Pollution degree	2

Communication and Management

Local Area Network	100 Mbps
Extensions	Two optional Network Management Cards
MODBUS	MODBUS TCP/IP
Relay outputs	6 configurable
Dry contact inputs	5 configurable
Standard control panel	7" touch-screen display
Audible alarm	Yes
Emergency Power Off (EPO)	Options: • Normally Open (NO) • Normally Closed (NC) • External 24 VDC SELV
External switchgear	Option containing: • Unit Input Breaker (UIB) • Unit Output Breaker (UOB) • Static Switch Input Breaker (SSIB) • Maintenance Bypass Breaker (MBB) • System Isolation Breaker (SIB)
External synchronization	Yes
Battery monitoring	Yes — string level breaker monitoring

EPO Connections



Overview of Input Contacts and Output Relays

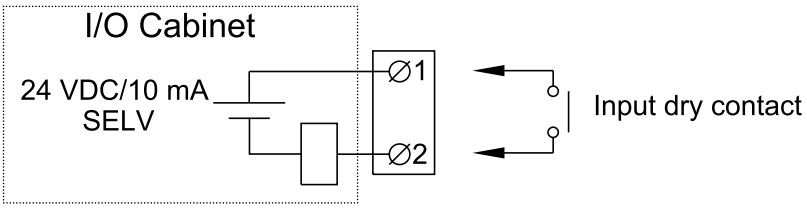
Input Contacts

Do not connect any circuit to the input contacts unless it can be confirmed that the circuit is Class 2/SELV.

All circuits connected must have the same 0 V reference.

The input contacts support 24 VDC 10 mA.

The switch SW5500 on 0P6548 is used to select between internal SELV supply for inputs (standard setting) and external supply[3]. If external supply is selected, the supply must be connected to J5530.

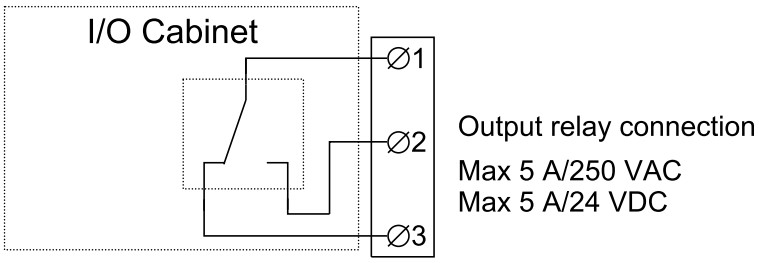


Name	Description	Location
IN 1 (Contact 1)	Configurable input contact	0P6548 terminal J5502[4]
IN 2 (Contact 2)	Configurable input contact	0P6548 terminal J5503[4]
IN 3 (Contact 3)	Configurable input contact	0P6548 terminal J5504[4]
IN 4 (Contact 4)	Configurable input contact	0P6548 terminal J5505[4]
IN 5 (Contact 5)	Configurable input contact	0P6548 terminal J5510[4]
IN 6	UOB redundant AUX contact	0P6548 terminal J5509[4]
IN 7	Transformer temperature switch	0P6548 terminal J5508[4]
IN 8	External bonding contact	0P6548 terminal J5507[4]
IN 9	Forced external synchronization input	0P6548 terminal J5506[4]
IN 10	External synchronization requested	0P6548 terminal J5511[4]
IN 11	Use static bypass standby	0P6548 terminal J5512[4]
IN 14	MegaTie	0P6552 terminal J9027[4]

Output Relays

NOTE: Maximum 250 VAC 5 A must be connected to the output relays.

All external circuitry must be fused with maximum 5 A fast acting fuses.



3. An external supply is useful in parallel systems where inputs are connected between different UPSs. This is to have a common reference and to avoid cross currents.
4. Class 2/SELV wiring

Name	Description	Location
OUT 1 (Relay 1)	Configurable output relay	0P6547 terminal J4939
OUT 2 (Relay 2)	Configurable output relay	0P6547 terminal J4940
OUT 3 (Relay 3)	Configurable output relay	0P6547 terminal J4941
OUT 4	Forced external synchronization output	0P6548 terminal J5520[5]
OUT 5	MegaTie	0P6548 terminal J5521[5]
OUT 6	External synchronization requested output	0P6548 terminal J5522[5]
OUT 7	UPS in inverter ON	0P6548 terminal J5523[5]
OUT 8 (Relay 4)	Configurable output relay	0P6548 terminal J5524[5]
OUT 9 (Relay 5)	Configurable output relay	0P6548 terminal J5525[5]
OUT 10 (Relay 6)	Configurable output relay	0P6548 terminal J5528[5]
OUT 14	Bonding contactor	0P6552 terminal J9029[5]

NOTE: Refer to the operation manual for configuration options.

5. Class 2/SELV wiring

Facility Planning

Specifications for 500 kW UPS

	Voltage (V)	380	400	415	440	480
Input	Connections	IEC: L1, L2, L3, PE [6] UL: L1, L2, L3 + G [7]				
	Input voltage range (V)[8]	340-456	340-480	353-498	374-528	408-576
	Frequency (Hz)	40-70				
	Nominal input current (A)	816	775	746	699	646
	Maximum input current (A)[9]	921	885	852	798	757
	Input current limitation (A)	890			832	760
	Minimum short circuit rating	Dependent on upstream protection. See section for '**Recommended upstream protection and cable sizes – IEC**' for details.				
	Maximum short circuit rating	100 kA RMS				
	Total harmonic distortion (THDI)	<3% at 100% load, <4% at 50% load, <9% at 25% load				
	Input power factor	0.99 at >40% load, 0.98 at >20% load, 0.97 at >10% load				
	Protection	Contactors				
	Ramp-in	Adaptive 1-300 seconds				
Bypass	Connections	IEC 1250 kW I/O and 1500 kW I/O: L1, L2, L3, N, PE **or** L1, L2, L3, PE [10] UL 1250 kW I/O: L1, L2, L3, G **or** L1, L2, L3, N, G UL 1500 kW I/O[11]: 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: ±0.1, ±3, ±10. Default is ±3				
	Nominal bypass current (A)	813	773	745	703	642
	Minimum short circuit rating	Dependent on upstream protection. See section for '**Recommended upstream protection and cable sizes – IEC**' for details.				
	Maximum short circuit rating	1250 kW I/O: 100 kA Icw 1500 kW I/O: 100 kA RMS (conditioned by an internal molded switch with 90 kA peak magnetic trip)				
	Thyristor I^2t (kA^*s^2)	1250 kW I/O: 9680 1500 kW I/O: 16245				1250 kW I/O: 9165 1500 kW I/O: 16245
	BF2 magnetic trip	1250 kW I/O: 39 kA 1500 kW I/O: 39 kA				
	Protection	1250 kW I/O with preinstalled backfeed breaker BF2: Molded switch with trip for backfeed protection 1250 kW I/O with GVXOPT001 installed: Molded switch with trip for backfeed protection 1500 kW I/O with preinstalled backfeed breaker BF2: Molded switch with trip for backfeed protection				

6. TN, TT, and IT power distribution systems are supported.
7. WYE source – solid grounded and high resistance grounded sources are supported. Corner (line) grounding is not permitted.
8. The system can operate at 600 V for 1 minute.
9. At nominal input voltage and full charge.
10. TN, TT, and IT power distribution systems with no earthed line conductors are supported.
11. 4-wire connection with neutral is not compliant per FCC regulations for the 1500 kW I/O cabinet.

	Voltage (V)	380	400	415	440	480
Output	Connections	IEC 1250 kW I/O and 1500 kW I/O: L1, L2, L3, N, PE **or** L1, L2, L3, PE UL 1250 kw I/O: L1, L2, L3, G, GEC[12] **or** L1, L2, L3, N, G UL 1500 kW I/O[13]: L1, L2, L3, G, GEC[12]				
	Overload capacity	Normal operation: 150% for 1 minute, 125% for 10 minutes Battery operation: 128% for 10 seconds, 115% for 1 minute Bypass operation: 110%[14] continuous, 1000% for 60 milliseconds for systems with 1250 kW I/O cabinet, and 1000% for 100 milliseconds for systems with 1500 kW I/O cabinet				
	Output voltage tolerance	Balanced load: ±1%, Unbalanced load: ±3%				
	Dynamic load response	±5% after 2 ms, ±1% after 50 ms				
	Output power factor	1				
	Nominal output current (A)	760	722	696	656	601
	Minimum short circuit rating[15]	Dependent on upstream protection. See section for '**Recommended upstream protection and cable sizes – IEC**' for details.				
	Maximum short circuit rating[16]	100 kA RMS				
	Inverter output short circuit capabilities	Varies with time. See graph and table values in Inverter Short–Circuit Capabilities (Bypass not Available), page 16.				
	Total harmonic distortion (THDU)	<2% at 100% linear load, <3% at 100% non-linear load				
	Output frequency (Hz)	50/60 (synchronized to bypass), 50/60 Hz ±0.1% (free-running)				
	Slew rate (Hz/sec)	Programmable: 0.25, 0.5, 1, 2, 4, 6				
	Output performance classification (according to IEC/ EN62040-3)	Double-conversion: VFI-SS-111				
	Load crest factor	Up to 3 (THDU < 5%)				
	Load power factor	0.7 leading to 0.5 lagging without derating				
Battery (VRLA)	Charging power in % of output power	35% at ≤ 80% load, 12% at 100% load				40% at ≤ 80% load, 15% at 100% load
	Maximum charging power (kW)	60 at 100% load, 175 at <80% load				75 at 100% load, 200 at 80% load
	Nominal battery voltage (VDC)	480				
	Nominal float voltage (VDC)	546				
	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)	1090				
	Battery current at full load and minimum battery voltage (A)	1362				
	Maximum short circuit rating	50 kA				
	Maximum battery backup time	Unlimited				
	Temperature compensation (per cell)	-3.3 mV per °C for T ≥ 25 °C, 0 mV per °C for T < 25 °C				
	Ripple current	< 5% C20 (5-minute backup time)				
	Battery test	Manual/automatic (selectable)				
	Deep discharge protection	Yes				
	Recharge according to battery temperature	Yes				

12. Per NEC 250.30.
13. 4-wire connection with neutral is not compliant per FCC regulations for the 1500 kW I/O cabinet.
14. 125% for 480 V.
15. Minimum short circuit rating for output takes backfeeding energy through the bypass of parallel UPSs into consideration.
16. Maximum short circuit rating for output takes backfeeding energy through the bypass of parallel UPSs into consideration.

Specifications for 625 kW UPS

	Voltage (V)	380	400	415	440	480
Input	Connections	IEC: L1, L2, L3, PE [17] UL: L1, L2, L3 + G [18]				
	Input voltage range (V)[19]	340-456	340-480	353-498	374-528	408-576
	Frequency (Hz)	40-70				
	Nominal input current (A)	1021	969	932	870	807
	Maximum input current (A)[20]	1151	1106	1065	994	946
	Input current limitation (A)	1113			1040	950
	Minimum short circuit rating	Dependent on upstream protection. See section for '**Recommended upstream protection and cable sizes – IEC**' for details.				
	Maximum short circuit rating	100 kA RMS				
	Total harmonic distortion (THDI)	<3% at 100% load, <4% at 50% load, <9% at 25% load				
	Input power factor	0.99 at >40% load, 0.98 at >20% load, 0.97 at >10% load				
	Protection	Contactors				
	Ramp-in	Adaptive 1-300 seconds				
Bypass	Connections	IEC 1250 kW I/O and 1500 kW I/O: L1, L2, L3, N, PE **or** L1, L2, L3, PE [21] UL 1250 kW I/O: L1, L2, L3, G **or** L1, L2, L3, N, G UL 1500 kW I/O[22]: 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: ±0.1, ±3, ±10. Default is ±3				
	Nominal bypass current (A)	1017	966	931	878	802
	Minimum short circuit rating	Dependent on upstream protection. See section for '**Recommended upstream protection and cable sizes – IEC**' for details.				
	Maximum short circuit rating	1250 kW I/O: 100 kA Icw 1500 kW I/O: 100 kA RMS (conditioned by an internal molded switch with 90 kA peak magnetic trip)				
	Thyristor I^2t (kA^*s^2)	9680 (1250 kW I/O)				9165 (1250 kW I/O)
	BF2 magnetic trip	1250 kW I/O: 39 kA 1500 kW I/O: 39 kA				
	Protection	1250 kW I/O with preinstalled backfeed breaker BF2: Molded switch with trip for backfeed protection 1250 kW I/O with GVXOPT001 installed: Molded switch with trip for backfeed protection 1500 kW I/O with preinstalled backfeed breaker BF2: Molded switch with trip for backfeed protection				

17. TN, TT, and IT power distribution systems are supported.
18. WYE source – solid grounded and high resistance grounded sources are supported. Corner (line) grounding is not permitted.
19. The system can operate at 600 V for 1 minute.
20. At nominal input voltage and full charge.
21. TN, TT, and IT power distribution systems with no earthed line conductors are supported.
22. 4-wire connection with neutral is not compliant per FCC regulations for the 1500 kW I/O cabinet.

	Voltage (V)	380	400	415	440	480
Output	Connections	IEC 1250 kW I/O and 1500 kW I/O: L1, L2, L3, N, PE **or** L1, L2, L3, PE UL 1250 kw I/O: L1, L2, L3, G, GEC[23] **or** L1, L2, L3, N, G UL 1500 kW I/O[24]: L1, L2, L3, G, GEC[23]				
	Overload capacity	Normal operation: 150% for 1 minute, 125% for 10 minutes Battery operation: 128% for 10 seconds, 115% for 1 minute Bypass operation: 110%[25] continuous, 1000% for 60 milliseconds for systems with 1250 kW I/O cabinet, and 1000% for 100 milliseconds for systems with 1500 kW I/O cabinet				
	Output voltage tolerance	Balanced load: ±1%, Unbalanced load: ±3%				
	Dynamic load response	±5% after 2 ms, ±1% after 50 ms				
	Output power factor	1				
	Nominal output current (A)	950	902	870	820	752
	Minimum short circuit rating[26]	Dependent on upstream protection. See section for '**Recommended upstream protection and cable sizes – IEC**' for details.				
	Maximum short circuit rating[27]	100 kA RMS				
	Inverter output short circuit capabilities	Varies with time. See graph and table values in Inverter Short–Circuit Capabilities (Bypass not Available), page 16.				
	Total harmonic distortion (THDU)	<2% at 100% linear load, <3% at 100% non-linear load				
	Output frequency (Hz)	50/60 (synchronized to bypass), 50/60 Hz ±0.1% (free-running)				
	Slew rate (Hz/sec)	Programmable: 0.25, 0.5, 1, 2, 4, 6				
	Output performance classification (according to IEC/ EN62040-3)	Double-conversion: VFI-SS-111				
	Load crest factor	Up to 3 (THDU < 5%)				
	Load power factor	0.7 leading to 0.5 lagging without derating				
Battery (VRLA)	Charging power in % of output power	35% at ≤ 80% load, 12% at 100% load				40% at ≤ 80% load, 15% at 100% load
	Maximum charging power (kW)	75 at 100% load, 218.75 at <80% load				93.75 at 100% load, 250 at 80% load
	Nominal battery voltage (VDC)	480				
	Nominal float voltage (VDC)	546				
	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)	1362				
	Battery current at full load and minimum battery voltage (A)	1703				
	Maximum short circuit rating	50 kA				
	Maximum battery backup time	Unlimited				
	Temperature compensation (per cell)	-3.3 mV per °C for T ≥ 25 °C, 0 mV per °C for T < 25 °C				
	Ripple current	< 5% C20 (5-minute backup time)				
	Battery test	Manual/automatic (selectable)				
	Deep discharge protection	Yes				
	Recharge according to battery temperature	Yes				

23. Per NEC 250.30.
24. 4-wire connection with neutral is not compliant per FCC regulations for the 1500 kW I/O cabinet.
25. 125% for 480 V.
26. Minimum short circuit rating for output takes backfeeding energy through the bypass of parallel UPSs into consideration.
27. Maximum short circuit rating for output takes backfeeding energy through the bypass of parallel UPSs into consideration.

Specifications for 750 kW UPS

	Voltage (V)	380	400	415	440	480
Input	Connections	IEC: L1, L2, L3, PE [28] UL: L1, L2, L3 + G [29]				
	Input voltage range (V)[30]	340-456	340-480	353-498	374-528	408-576
	Frequency (Hz)	40-70				
	Nominal input current (A)	1225	1162	1119	1050	969
	Maximum input current (A)[31]	1381	1327	1278	1199	1136
	Input current limitation (A)	1335			1248	1140
	Minimum short circuit rating	Dependent on upstream protection. See section for '**Recommended upstream protection and cable sizes – IEC**' for details.				
	Maximum short circuit rating	100 kA RMS				
	Total harmonic distortion (THDI)	<3% at 100% load, <4% at 50% load, <9% at 25% load				
	Input power factor	0.99 at >40% load, 0.98 at >20% load, 0.97 at >10% load				
	Protection	Contactors				
	Ramp-in	Adaptive 1-300 seconds				
Bypass	Connections	IEC 1250 kW I/O and 1500 kW I/O: L1, L2, L3, N, PE **or** L1, L2, L3, PE [32] UL 1250 kW I/O: L1, L2, L3, G **or** L1, L2, L3, N, G UL 1500 kW I/O[33]: 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: ±0.1, ±3, ±10. Default is ±3				
	Nominal bypass current (A)	1220	1159	1117	1054	964
	Minimum short circuit rating	Dependent on upstream protection. See section for '**Recommended upstream protection and cable sizes – IEC**' for details.				
	Maximum short circuit rating	1250 kW I/O: 100 kA Icw 1500 kW I/O: 100 kA RMS (conditioned by an internal molded switch with 90 kA peak magnetic trip)				
	Thyristor I^2t (kA^*s^2)	1250 kW I/O: 9680 1500 kW I/O: 16245				1250 kW I/O: 9165 1500 kW I/O: 16245
	BF2 magnetic trip	1250 kW I/O: 39 kA 1500 kW I/O: 39 kA				
	Protection	1250 kW I/O with preinstalled backfeed breaker BF2: Molded switch with trip for backfeed protection 1250 kW I/O with GVXOPT001 installed: Molded switch with trip for backfeed protection 1500 kW I/O with preinstalled backfeed breaker BF2: Molded switch with trip for backfeed protection				

28. TN, TT, and IT power distribution systems are supported.
29. WYE source – solid grounded and high resistance grounded sources are supported. Corner (line) grounding is not permitted.
30. The system can operate at 600 V for 1 minute.
31. At nominal input voltage and full charge.
32. TN, TT, and IT power distribution systems with no earthed line conductors are supported.
33. 4-wire connection with neutral is not compliant per FCC regulations for the 1500 kW I/O cabinet.

	Voltage (V)	380	400	415	440	480
Output	Connections	IEC 1250 kW I/O and 1500 kW I/O: L1, L2, L3, N, PE **or** L1, L2, L3, PE UL 1250 kw I/O: L1, L2, L3, G, GEC[34] **or** L1, L2, L3, N, G UL 1500 kW I/O[35]: L1, L2, L3, G, GEC[34]				
	Overload capacity	Normal operation: 150% for 1 minute, 125% for 10 minutes Battery operation: 128% for 10 seconds, 115% for 1 minute Bypass operation: 110%[36] continuous, 1000% for 60 milliseconds for systems with 1250 kW I/O cabinet, and 1000% for 100 milliseconds for systems with 1500 kW I/O cabinet				
	Output voltage tolerance	Balanced load: ±1%, Unbalanced load: ±3%				
	Dynamic load response	±5% after 2 ms, ±1% after 50 ms				
	Output power factor	1				
	Nominal output current (A)	1140	1083	1043	984	902
	Minimum short circuit rating[37]	Dependent on upstream protection. See section for '**Recommended upstream protection and cable sizes – IEC**' for details.				
	Maximum short circuit rating[38]	100 kA RMS				
	Inverter output short circuit capabilities	Varies with time. See graph and table values in Inverter Short–Circuit Capabilities (Bypass not Available), page 16.				
	Total harmonic distortion (THDU)	<2% at 100% linear load, <3% at 100% non-linear load				
	Output frequency (Hz)	50/60 (synchronized to bypass), 50/60 Hz ±0.1% (free-running)				
	Slew rate (Hz/sec)	Programmable: 0.25, 0.5, 1, 2, 4, 6				
	Output performance classification (according to IEC/ EN62040-3)	Double-conversion: VFI-SS-111				
	Load crest factor	Up to 3 (THDU < 5%)				
	Load power factor	0.7 leading to 0.5 lagging without derating				
Battery (VRLA)	Charging power in % of output power	35% at ≤ 80% load, 12% at 100% load				40% at ≤ 80% load, 15% at 100% load
	Maximum charging power (kW)	90 at 100% load, 262 at <80% load				112.5 at 100% load, 300 at 80% load
	Nominal battery voltage (VDC)	480				
	Nominal float voltage (VDC)	546				
	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)	1634				
	Battery current at full load and minimum battery voltage (A)	2043				
	Maximum short circuit rating	50 kA				
	Maximum battery backup time	Unlimited				
	Temperature compensation (per cell)	-3.3 mV per °C for T ≥ 25 °C, 0 mV per °C for T < 25 °C				
	Ripple current	< 5% C20 (5-minute backup time)				
	Battery test	Manual/automatic (selectable)				
	Deep discharge protection	Yes				
	Recharge according to battery temperature	Yes				

34. Per NEC 250.30.
35. 4-wire connection with neutral is not compliant per FCC regulations for the 1500 kW I/O cabinet.
36. 125% for 480 V.
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.

Specifications for 800 kW UPS

	Voltage (V)	380	400	415	440	480
Input	Connections	IEC: L1, L2, L3, PE [39] UL: L1, L2, L3 + G [40]				
	Input voltage range (V)[41]	340-456	340-480	353-498	374-528	408-576
	Frequency (Hz)	40-70				
	Nominal input current (A)	1307	1239	1193	1120	1033
	Maximum input current (A)[42]	1474	1415	1363	1279	1212
	Input current limitation (A)	1424			1331	1216
	Minimum short circuit rating	Dependent on upstream protection. See section for '**Recommended upstream protection and cable sizes – IEC**' for details.				
	Maximum short circuit rating	100 kA RMS				
	Total harmonic distortion (THDI)	<3% at 100% load, <4% at 50% load, <9% at 25% load				
	Input power factor	0.99 at >40% load, 0.98 at >20% load, 0.97 at >10% load				
	Protection	Contactors				
	Ramp-in	Adaptive 1-300 seconds				
Bypass	Connections	IEC 1250 kW I/O and 1500 kW I/O: L1, L2, L3, N, PE **or** L1, L2, L3, PE [43] UL 1250 kW I/O: L1, L2, L3, G **or** L1, L2, L3, N, G UL 1500 kW I/O[44]: 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: ±0.1, ±3, ±10. Default is ±3				
	Nominal bypass current (A)	1302	1236	1191	1124	1027
	Minimum short circuit rating	Dependent on upstream protection. See section for '**Recommended upstream protection and cable sizes – IEC**' for details.				
	Maximum short circuit rating	1250 kW I/O: 100 kA Icw 1500 kW I/O: 100 kA RMS (conditioned by an internal molded switch with 90 kA peak magnetic trip)				
	Thyristor I^2t (kA^*s^2)	9680 (1250 kW I/O)				9165 (1250 kW I/O)
	BF2 magnetic trip	1250 kW I/O: 39 kA 1500 kW I/O: 39 kA				
	Protection	1250 kW I/O with preinstalled backfeed breaker BF2: Molded switch with trip for backfeed protection 1250 kW I/O with GVXOPT001 installed: Molded switch with trip for backfeed protection 1500 kW I/O with preinstalled backfeed breaker BF2: Molded switch with trip for backfeed protection				

39. TN, TT, and IT power distribution systems are supported.
40. WYE source – solid grounded and high resistance grounded sources are supported. Corner (line) grounding is not permitted.
41. The system can operate at 600 V for 1 minute.
42. At nominal input voltage and full charge.
43. TN, TT, and IT power distribution systems with no earthed line conductors are supported.
44. 4-wire connection with neutral is not compliant per FCC regulations for the 1500 kW I/O cabinet.

	Voltage (V)	380	400	415	440	480
Output	Connections	IEC 1250 kW I/O and 1500 kW I/O: L1, L2, L3, N, PE **or** L1, L2, L3, PE UL 1250 kw I/O: L1, L2, L3, G, GEC[45] **or** L1, L2, L3, N, G UL 1500 kW I/O[46]: L1, L2, L3, G, GEC[45]				
	Overload capacity	Normal operation: 150% for 1 minute, 125% for 10 minutes Battery operation: 128% for 10 seconds, 115% for 1 minute Bypass operation: 110%[47] continuous, 1000% for 60 milliseconds for systems with 1250 kW I/O cabinet, and 1000% for 100 milliseconds for systems with 1500 kW I/O cabinet				
	Output voltage tolerance	Balanced load: ±1%, Unbalanced load: ±3%				
	Dynamic load response	±5% after 2 ms, ±1% after 50 ms				
	Output power factor	1				
	Nominal output current (A)	1216	1155	1113	1050	962
	Minimum short circuit rating[48]	Dependent on upstream protection. See section for '**Recommended upstream protection and cable sizes – IEC**' for details.				
	Maximum short circuit rating[49]	100 kA RMS				
	Inverter output short circuit capabilities	Varies with time. See graph and table values in Inverter Short–Circuit Capabilities (Bypass not Available), page 16.				
	Total harmonic distortion (THDU)	<2% at 100% linear load, <3% at 100% non-linear load				
	Output frequency (Hz)	50/60 (synchronized to bypass), 50/60 Hz ±0.1% (free-running)				
	Slew rate (Hz/sec)	Programmable: 0.25, 0.5, 1, 2, 4, 6				
	Output performance classification (according to IEC/ EN62040-3)	Double-conversion: VFI-SS-111				
	Load crest factor	Up to 3 (THDU < 5%)				
	Load power factor	0.7 leading to 0.5 lagging without derating				
Battery (VRLA)	Charging power in % of output power	35% at ≤ 80% load, 12% at 100% load				40% at ≤ 80% load, 15% at 100% load
	Maximum charging power (kW)	96 at 100% load, 280 at <80% load				120 at 100% load, 320 at 80% load
	Nominal battery voltage (VDC)	480				
	Nominal float voltage (VDC)	546				
	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)	1743				
	Battery current at full load and minimum battery voltage (A)	2179				
	Maximum short circuit rating	50 kA				
	Maximum battery backup time	Unlimited				
	Temperature compensation (per cell)	-3.3 mV per °C for T ≥ 25 °C, 0 mV per °C for T < 25 °C				
	Ripple current	< 5% C20 (5-minute backup time)				
	Battery test	Manual/automatic (selectable)				
	Deep discharge protection	Yes				
	Recharge according to battery temperature	Yes				

45. Per NEC 250.30.
46. 4-wire connection with neutral is not compliant per FCC regulations for the 1500 kW I/O cabinet.
47. 125% for 480 V.
48. Minimum short circuit rating for output takes backfeeding energy through the bypass of parallel UPSs into consideration.
49. Maximum short circuit rating for output takes backfeeding energy through the bypass of parallel UPSs into consideration.

Specifications for 1000 kW UPS

	Voltage (V)	380	400	415	440	480
Input	Connections	IEC: L1, L2, L3, PE [50] UL: L1, L2, L3 + G [51]				
	Input voltage range (V)[52]	340-456	340-480	353-498	374-528	408-576
	Frequency (Hz)	40-70				
	Nominal input current (A)	1633	1549	1492	1397	1291
	Maximum input current (A)[53]	1842	1770	1704	1595	1514
	Input current limitation (A)	1780			1664	1520
	Minimum short circuit rating	Dependent on upstream protection. See section for '**Recommended upstream protection and cable sizes – IEC**' for details.				
	Maximum short circuit rating	100 kA RMS				
	Total harmonic distortion (THDI)	<3% at 100% load, <4% at 50% load, <9% at 25% load				
	Input power factor	0.99 at >40% load, 0.98 at >20% load, 0.97 at >10% load				
	Protection	Contactors				
	Ramp-in	Adaptive 1-300 seconds				
Bypass	Connections	IEC 1250 kW I/O and 1500 kW I/O: L1, L2, L3, N, PE **or** L1, L2, L3, PE [54] UL 1250 kW I/O: L1, L2, L3, G **or** L1, L2, L3, N, G UL 1500 kW I/O[55]: 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: ±0.1, ±3, ±10. Default is ±3				
	Nominal bypass current (A)	1627	1545	1489	1405	1284
	Minimum short circuit rating	Dependent on upstream protection. See section for '**Recommended upstream protection and cable sizes – IEC**' for details.				
	Maximum short circuit rating	1250 kW I/O: 100 kA Icw 1500 kW I/O: 100 kA RMS (conditioned by an internal molded switch with 90 kA peak magnetic trip)				
	Thyristor I^2t (kA^*s^2)	1250 kW I/O: 9680 1500 kW I/O: 16245				1250 kW I/O: 9165 1500 kW I/O: 16245
	BF2 magnetic trip	1250 kW I/O: 39 kA 1500 kW I/O: 39 kA				
	Protection	1250 kW I/O with preinstalled backfeed breaker BF2: Molded switch with trip for backfeed protection 1250 kW I/O with GVXOPT001 installed: Molded switch with trip for backfeed protection 1500 kW I/O with preinstalled backfeed breaker BF2: Molded switch with trip for backfeed protection				

50. TN, TT, and IT power distribution systems are supported.
51. WYE source – solid grounded and high resistance grounded sources are supported. Corner (line) grounding is not permitted.
52. The system can operate at 600 V for 1 minute.
53. At nominal input voltage and full charge.
54. TN, TT, and IT power distribution systems with no earthed line conductors are supported.
55. 4-wire connection with neutral is not compliant per FCC regulations for the 1500 kW I/O cabinet.

	Voltage (V)	380	400	415	440	480
Output	Connections	IEC 1250 kW I/O and 1500 kW I/O: L1, L2, L3, N, PE **or** L1, L2, L3, PE UL 1250 kw I/O: L1, L2, L3, G, GEC[56] **or** L1, L2, L3, N, G UL 1500 kW I/O[57]: L1, L2, L3, G, GEC[56]				
	Overload capacity	Normal operation: 150% for 1 minute, 125% for 10 minutes Battery operation: 128% for 10 seconds, 115% for 1 minute Bypass operation: 110%[58] continuous, 1000% for 60 milliseconds for systems with 1250 kW I/O cabinet, and 1000% for 100 milliseconds for systems with 1500 kW I/O cabinet				
	Output voltage tolerance	Balanced load: ±1%, Unbalanced load: ±3%				
	Dynamic load response	±5% after 2 ms, ±1% after 50 ms				
	Output power factor	1				
	Nominal output current (A)	1519	1443	1391	1312	1203
	Minimum short circuit rating[59]	Dependent on upstream protection. See section for '**Recommended upstream protection and cable sizes – IEC**' for details.				
	Maximum short circuit rating[60]	100 kA RMS				
	Inverter output short circuit capabilities	Varies with time. See graph and table values in Inverter Short–Circuit Capabilities (Bypass not Available), page 16.				
	Total harmonic distortion (THDU)	<2% at 100% linear load, <3% at 100% non-linear load				
	Output frequency (Hz)	50/60 (synchronized to bypass), 50/60 Hz ±0.1% (free-running)				
	Slew rate (Hz/sec)	Programmable: 0.25, 0.5, 1, 2, 4, 6				
	Output performance classification (according to IEC/ EN62040-3)	Double-conversion: VFI-SS-111				
	Load crest factor	Up to 3 (THDU < 5%)				
	Load power factor	0.7 leading to 0.5 lagging without derating				
Battery (VRLA)	Charging power in % of output power	35% at ≤ 80% load, 12% at 100% load				40% at ≤ 80% load, 15% at 100% load
	Maximum charging power (kW)	120 at 100% load, 350 at <80% load				150 at 100% load, 400 at <80% load
	Nominal battery voltage (VDC)	480				
	Nominal float voltage (VDC)	546				
	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)	2179				
	Battery current at full load and minimum battery voltage (A)	2724				
	Maximum short circuit rating	50 kA				
	Maximum battery backup time	Unlimited				
	Temperature compensation (per cell)	-3.3 mV per °C for T ≥ 25 °C, 0 mV per °C for T < 25 °C				
	Ripple current	< 5% C20 (5-minute backup time)				
	Battery test	Manual/automatic (selectable)				
	Deep discharge protection	Yes				
	Recharge according to battery temperature	Yes				

56. Per NEC 250.30.
57. 4-wire connection with neutral is not compliant per FCC regulations for the 1500 kW I/O cabinet.
58. 125% for 480 V.
59. Minimum short circuit rating for output takes backfeeding energy through the bypass of parallel UPSs into consideration.
60. Maximum short circuit rating for output takes backfeeding energy through the bypass of parallel UPSs into consideration.

Specifications for 1100 kW UPS

	Voltage (V)	380	400	415	440	480
Input	Connections	IEC: L1, L2, L3, PE [61] UL: L1, L2, L3 + G [62]				
	Input voltage range (V)[63]	340-456	340-480	353-498	374-528	408-576
	Frequency (Hz)	40-70				
	Nominal input current (A)	1796	1704	1641	1540	1421
	Maximum input current (A)[64]	2026	1947	1874	1759	1666
	Input current limitation (A)	1958			1830	1672
	Minimum short circuit rating	Dependent on upstream protection. See section for '**Recommended upstream protection and cable sizes – IEC**' for details.				
	Maximum short circuit rating	100 kA RMS				
	Total harmonic distortion (THDI)	<3% at 100% load, <4% at 50% load, <9% at 25% load				
	Input power factor	0.99 at >40% load, 0.98 at >20% load, 0.97 at >10% load				
	Protection	Contactors				
	Ramp-in	Adaptive 1-300 seconds				
Bypass	Connections	IEC 1250 kW I/O and 1500 kW I/O: L1, L2, L3, N, PE **or** L1, L2, L3, PE [65] UL 1250 kW I/O: L1, L2, L3, G **or** L1, L2, L3, N, G UL 1500 kW I/O[66]: 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: ±0.1, ±3, ±10. Default is ±3				
	Nominal bypass current (A)	1789	1700	1639	1545	1412
	Minimum short circuit rating	Dependent on upstream protection. See section for '**Recommended upstream protection and cable sizes – IEC**' for details.				
	Maximum short circuit rating	1250 kW I/O: 100 kA Icw 1500 kW I/O: 100 kA RMS (conditioned by an internal molded switch with 90 kA peak magnetic trip)				
	Thyristor I^2t (kA^*s^2)	9680 (1250 kW I/O)				9165 (1250 kW I/O)
	BF2 magnetic trip	1250 kW I/O: 39 kA 1500 kW I/O: 39 kA				
	Protection	1250 kW I/O with preinstalled backfeed breaker BF2: Molded switch with trip for backfeed protection 1250 kW I/O with GVXOPT001 installed: Molded switch with trip for backfeed protection 1500 kW I/O with preinstalled backfeed breaker BF2: Molded switch with trip for backfeed protection				

61. TN, TT, and IT power distribution systems are supported.
62. WYE source – solid grounded and high resistance grounded sources are supported. Corner (line) grounding is not permitted.
63. The system can operate at 600 V for 1 minute.
64. At nominal input voltage and full charge.
65. TN, TT, and IT power distribution systems with no earthed line conductors are supported.
66. 4-wire connection with neutral is not compliant per FCC regulations for the 1500 kW I/O cabinet.

	Voltage (V)	380	400	415	440	480
Output	Connections	IEC 1250 kW I/O and 1500 kW I/O: L1, L2, L3, N, PE **or** L1, L2, L3, PE UL 1250 kw I/O: L1, L2, L3, G, GEC[67] **or** L1, L2, L3, N, G UL 1500 kW I/O[68]: L1, L2, L3, G, GEC[67]				
	Overload capacity	Normal operation: 150% for 1 minute, 125% for 10 minutes Battery operation: 128% for 10 seconds, 115% for 1 minute Bypass operation: 110%[69] continuous, 1000% for 60 milliseconds for systems with 1250 kW I/O cabinet, and 1000% for 100 milliseconds for systems with 1500 kW I/O cabinet				
	Output voltage tolerance	Balanced load: ±1%, Unbalanced load: ±3%				
	Dynamic load response	±5% after 2 ms, ±1% after 50 ms				
	Output power factor	1				
	Nominal output current (A)	1671	1588	1530	1443	1323
	Minimum short circuit rating[70]	Dependent on upstream protection. See section for '**Recommended upstream protection and cable sizes – IEC**' for details.				
	Maximum short circuit rating[71]	100 kA RMS				
	Inverter output short circuit capabilities	Varies with time. See graph and table values in Inverter Short–Circuit Capabilities (Bypass not Available), page 16.				
	Total harmonic distortion (THDU)	<2% at 100% linear load, <3% at 100% non-linear load				
	Output frequency (Hz)	50/60 (synchronized to bypass), 50/60 Hz ±0.1% (free-running)				
	Slew rate (Hz/sec)	Programmable: 0.25, 0.5, 1, 2, 4, 6				
	Output performance classification (according to IEC/ EN62040-3)	Double-conversion: VFI-SS-111				
	Load crest factor	Up to 3 (THDU < 5%)				
	Load power factor	0.7 leading to 0.5 lagging without derating				
Battery (VRLA)	Charging power in % of output power	35% at ≤ 80% load, 12% at 100% load				40% at ≤ 80% load, 15% at 100% load
	Maximum charging power (kW)	132 at 100% load, 385 at <80% load				165 at 100% load, 440 at <80% load
	Nominal battery voltage (VDC)	480				
	Nominal float voltage (VDC)	546				
	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)	2397				
	Battery current at full load and minimum battery voltage (A)	2996				
	Maximum short circuit rating	50 kA				
	Maximum battery backup time	Unlimited				
	Temperature compensation (per cell)	-3.3 mV per °C for T ≥ 25 °C, 0 mV per °C for T < 25 °C				
	Ripple current	< 5% C20 (5-minute backup time)				
	Battery test	Manual/automatic (selectable)				
	Deep discharge protection	Yes				
	Recharge according to battery temperature	Yes				

67. Per NEC 250.30.
68. 4-wire connection with neutral is not compliant per FCC regulations for the 1500 kW I/O cabinet.
69. 125% for 480 V.
70. Minimum short circuit rating for output takes backfeeding energy through the bypass of parallel UPSs into consideration.
71. Maximum short circuit rating for output takes backfeeding energy through the bypass of parallel UPSs into consideration.

Specifications for 1250 kW UPS

	Voltage (V)	380	400	415	440	480
Input	Connections	IEC: L1, L2, L3, PE [72] UL: L1, L2, L3 + G [73]				
	Input voltage range (V)[74]	340-456	340-480	353-498	374-528	408-576
	Frequency (Hz)	40-70				
	Nominal input current (A)	2041	1937	1865	1750	1615
	Maximum input current (A)[75]	2303	2212	2130	1999	1893
	Input current limitation (A)	2225			2080	1900
	Minimum short circuit rating	Dependent on upstream protection. See section for '**Recommended upstream protection and cable sizes – IEC**' for details.				
	Maximum short circuit rating	100 kA RMS				
	Total harmonic distortion (THDI)	<3% at 100% load, <4% at 50% load, <9% at 25% load				
	Input power factor	0.99 at >40% load, 0.98 at >20% load, 0.97 at >10% load				
	Protection	Contactors				
	Ramp-in	Adaptive 1-300 seconds				
Bypass	Connections	IEC 1250 kW I/O and 1500 kW I/O: L1, L2, L3, N, PE **or** L1, L2, L3, PE [76] UL 1250 kW I/O: L1, L2, L3, G **or** L1, L2, L3, N, G UL 1500 kW I/O[77]: 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: ±0.1, ±3, ±10. Default is ±3				
	Nominal bypass current (A)	2033	1931	1862	1756	1605
	Minimum short circuit rating	Dependent on upstream protection. See section for '**Recommended upstream protection and cable sizes – IEC**' for details.				
	Maximum short circuit rating	1250 kW I/O: 100 kA Icw 1500 kW I/O: 100 kA RMS (conditioned by an internal molded switch with 90 kA peak magnetic trip)				
	Thyristor I^2t (kA^*s^2)	1250 kW I/O: 9680 1500 kW I/O: 16245				1250 kW I/O: 9165 1500 kW I/O: 16245
	BF2 magnetic trip	1250 kW I/O: 39 kA 1500 kW I/O: 39 kA				
	Protection	1250 kW I/O with preinstalled backfeed breaker BF2: Molded switch with trip for backfeed protection 1250 kW I/O with GVXOPT001 installed: Molded switch with trip for backfeed protection 1500 kW I/O with preinstalled backfeed breaker BF2: Molded switch with trip for backfeed protection				

72. TN, TT, and IT power distribution systems are supported.
73. WYE source – solid grounded and high resistance grounded sources are supported. Corner (line) grounding is not permitted.
74. The system can operate at 600 V for 1 minute.
75. At nominal input voltage and full charge.
76. TN, TT, and IT power distribution systems with no earthed line conductors are supported.
77. 4-wire connection with neutral is not compliant per FCC regulations for the 1500 kW I/O cabinet.

	Voltage (V)	380	400	415	440	480
Output	Connections	IEC 1250 kW I/O and 1500 kW I/O: L1, L2, L3, N, PE **or** L1, L2, L3, PE UL 1250 kw I/O: L1, L2, L3, G, GEC[78] **or** L1, L2, L3, N, G UL 1500 kW I/O[79]: L1, L2, L3, G, GEC[78]				
	Overload capacity	Normal operation: 150% for 1 minute, 125% for 10 minutes Battery operation: 128% for 10 seconds, 115% for 1 minute Bypass operation: 110%[80] continuous, 1000% for 60 milliseconds for systems with 1250 kW I/O cabinet, and 1000% for 100 milliseconds for systems with 1500 kW I/O cabinet				
	Output voltage tolerance	Balanced load: ±1%, Unbalanced load: ±3%				
	Dynamic load response	±5% after 2 ms, ±1% after 50 ms				
	Output power factor	1				
	Nominal output current (A)	1899	1804	1739	1640	1504
	Minimum short circuit rating[81]	Dependent on upstream protection. See section for '**Recommended upstream protection and cable sizes – IEC**' for details.				
	Maximum short circuit rating[82]	100 kA RMS				
	Inverter output short circuit capabilities	Varies with time. See graph and table values in Inverter Short–Circuit Capabilities (Bypass not Available), page 16.				
	Total harmonic distortion (THDU)	<2% at 100% linear load, <3% at 100% non-linear load				
	Output frequency (Hz)	50/60 (synchronized to bypass), 50/60 Hz ±0.1% (free-running)				
	Slew rate (Hz/sec)	Programmable: 0.25, 0.5, 1, 2, 4, 6				
	Output performance classification (according to IEC/ EN62040-3)	Double-conversion: VFI-SS-111				
	Load crest factor	Up to 3 (THDU < 5%)				
	Load power factor	0.7 leading to 0.5 lagging without derating				
Battery (VRLA)	Charging power in % of output power	35% at ≤ 80% load, 12% at 100% load				40% at ≤ 80% load, 15% at 100% load
	Maximum charging power (kW)	150 at 100% load, 437 at <80% load				187.5 at 100% load, 500 at <80% load
	Nominal battery voltage (VDC)	480				
	Nominal float voltage (VDC)	546				
	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)	2724				
	Battery current at full load and minimum battery voltage (A)	3405				
	Maximum short circuit rating	50 kA				
	Maximum battery backup time	1 hour				
	Temperature compensation (per cell)	-3.3 mV per °C for T ≥ 25 °C, 0 mV per °C for T < 25 °C				
	Ripple current	< 5% C20 (5-minute backup time)				
	Battery test	Manual/automatic (selectable)				
	Deep discharge protection	Yes				
	Recharge according to battery temperature	Yes				

78. Per NEC 250.30.
79. 4-wire connection with neutral is not compliant per FCC regulations for the 1500 kW I/O cabinet.
80. 125% for 480 V.
81. Minimum short circuit rating for output takes backfeeding energy through the bypass of parallel UPSs into consideration.
82. Maximum short circuit rating for output takes backfeeding energy through the bypass of parallel UPSs into consideration.

Specifications for 1500 kW UPS

	Voltage (V)	380	400	415	440	480
Input	Connections	IEC: L1, L2, L3, PE [83] UL: L1, L2, L3 + G [84]				
	Input voltage range (V)[85]	340-456	340-480	353-498	374-528	408-576
	Frequency (Hz)	40-70				
	Nominal input current (A)	2449	2325	2238	2100	1937
	Maximum input current (A)[86]	2763	2654	2555	2398	2271
	Input current limitation (A)	2670			2496	2280
	Minimum short circuit rating	Dependent on upstream protection. See section for '**Recommended upstream protection and cable sizes – IEC**' for details.				
	Maximum short circuit rating	100 kA RMS				
	Total harmonic distortion (THDI)	<3% at 100% load, <4% at 50% load, <9% at 25% load				
	Input power factor	0.99 at >40% load, 0.98 at >20% load, 0.97 at >10% load				
	Protection	Contactors				
	Ramp-in	Adaptive 1-300 seconds				
Bypass	Connections	IEC 1250 kW I/O and 1500 kW I/O: L1, L2, L3, N, PE **or** L1, L2, L3, PE [87] UL 1250 kW I/O: L1, L2, L3, G **or** L1, L2, L3, N, G UL 1500 kW I/O[88]: 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: ±0.1, ±3, ±10. Default is ±3				
	Nominal bypass current (A)	2440	2318	2234	2107	1926
	Minimum short circuit rating	Dependent on upstream protection. See section for '**Recommended upstream protection and cable sizes – IEC**' for details.				
	Maximum short circuit rating	1250 kW I/O: 100 kA Icw 1500 kW I/O: 100 kA RMS (conditioned by an internal molded switch with 90 kA peak magnetic trip)				
	Thyristor I^2t (kA^*s^2)	16245 (1500 kW I/O)				
	BF2 magnetic trip	1250 kW I/O: 39 kA 1500 kW I/O: 39 kA				
	Protection	1250 kW I/O with preinstalled backfeed breaker BF2: Molded switch with trip for backfeed protection 1250 kW I/O with GVXOPT001 installed: Molded switch with trip for backfeed protection 1500 kW I/O with preinstalled backfeed breaker BF2: Molded switch with trip for backfeed protection				

83. TN, TT, and IT power distribution systems are supported.
84. WYE source – solid grounded and high resistance grounded sources are supported. Corner (line) grounding is not permitted.
85. The system can operate at 600 V for 1 minute.
86. At nominal input voltage and full charge.
87. TN, TT, and IT power distribution systems with no earthed line conductors are supported.
88. 4-wire connection with neutral is not compliant per FCC regulations for the 1500 kW I/O cabinet.

	Voltage (V)	380	400	415	440	480
Output	Connections	IEC 1250 kW I/O and 1500 kW I/O: L1, L2, L3, N, PE **or** L1, L2, L3, PE UL 1250 kw I/O: L1, L2, L3, G, GEC[89] **or** L1, L2, L3, N, G UL 1500 kW I/O[90]: L1, L2, L3, G, GEC[89]				
	Overload capacity	150% for 1 minute, 125% for 10 minutes (normal operation) 115% for 1 minute (battery operation) 110% continuous,1000% for 100 milliseconds (bypass operation)				
	Output voltage tolerance	Balanced load: ±1%, Unbalanced load: ±3%				
	Dynamic load response	±5% after 2 ms, ±1% after 50 ms				
	Output power factor	1				
	Nominal output current (A)	2279	2165	2087	1968	1804
	Minimum short circuit rating[91]	Dependent on upstream protection. See section for '**Recommended upstream protection and cable sizes – IEC**' for details.				
	Maximum short circuit rating[92]	100 kA RMS				
	Inverter output short circuit capabilities	Varies with time. See graph and table values in Inverter Short–Circuit Capabilities (Bypass not Available), page 16.				
	Total harmonic distortion (THDU)	<2% at 100% linear load, <3% at 100% non-linear load				
	Output frequency (Hz)	50/60 (synchronized to bypass), 50/60 Hz ±0.1% (free-running)				
	Slew rate (Hz/sec)	Programmable: 0.25, 0.5, 1, 2, 4, 6				
	Output performance classification (according to IEC/ EN62040-3)	Double-conversion: VFI-SS-111				
	Load crest factor	Up to 3 (THDU < 5%)				
	Load power factor	0.7 leading to 0.5 lagging without derating				
Battery (VRLA)	Charging power in % of output power	35% at ≤ 80% load, 12% at 100% load				40% at ≤ 80% load, 15% at 100% load
	Maximum charging power (kW)	525 at < 80% load, 180 at 100% load,				600 at <80% load, 225 at 100% load
	Nominal battery voltage (VDC)	480				
	Nominal float voltage (VDC)	546				
	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)	3269				
	Battery current at full load and minimum battery voltage (A)	4086				
	Maximum short circuit rating	50 kA				
	Maximum battery backup time	1 hour				
	Temperature compensation (per cell)	-3.3 mV per °C for T ≥ 25 °C, 0 mV per °C for T < 25 °C				
	Ripple current	< 5% C20 (5-minute backup time)				
	Battery test	Manual/automatic (selectable)				
	Deep discharge protection	Yes				
	Recharge according to battery temperature	Yes				

89. Per NEC 250.30.
90. 4-wire connection with neutral is not compliant per FCC regulations for the 1500 kW I/O cabinet.
91. Minimum short circuit rating for output takes backfeeding energy through the bypass of parallel UPSs into consideration.
92. Maximum short circuit rating for output takes backfeeding energy through the bypass of parallel UPSs into consideration.

Recommended Upstream Protection and Cable Sizes – UL

⚠CAUTION

HAZARD OF FIRE

- Connect only to a circuit with the below specifications.
- Connect only to a circuit provided with maximum a 1600 A branch circuit overcurrent protection in accordance with the National Electrical Code, ANSI/NFPA70, and the Canadian Electrical Code, Part I, C22.1.

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

NOTE: Overcurrent protection is to be provided by others.

NOTE: All wiring must comply with all applicable national and/or electrical code (National Electrical Code, ANSI/NFPA 70).

Cable sizes in this manual are based on Table 310.15 of the National Electrical Code 2014 (NEC) with the following assertions:

- 90 °C conductors (THHN) for 75 °C termination
- Not more than 3 current carrying conductors in each conduit
- An ambient temperature of max. 30 °C
- Use of copper or aluminium conductors
- 100% rated breakers
- Nominal operating conditions

If the ambient room temperature is greater than 30 °C, use larger or additional parallel conductors in accordance with the correction factors of the NEC. The maximum allowable conductor size is 600 kcmil.

Equipment Grounding Conductors (EGC) are sized in accordance with NEC Article 250.122 and Table 250.122 Minimum size equipment conductor for grounding equipment.

NOTE: Always consider the EGC size according to the complete electrical installation.

NOTE: The use of aluminium conductors can limit the number of parallel Lithium-ion battery cabinets. Contact Schneider Electric for more information.

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 of the same length for all UPSs.
- The output cables must be of the same length for all UPSs.
- The input cables must be of 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.

Recommended Upstream Protection and Cable Sizes for 500 kW UPS

	Maximum OCPD (A)	Cable size per phase (AWG/kcmil) Copper / Aluminum	EGC cable size (AWG/kcmil)[93] Copper / Aluminum
Input	800 (I_r = 1.0)	2x500 / 3x400	1x1/0 / 1x3/0
Bypass	700 (I_r = 1.0)	2x350 / 2x500	1x1/0 / 1x3/0
Output	700 (I_r = 1.0)	2x350 / 2x500	1x1/0 / 1x3/0
Battery	1600 (I_r = 0.9)	4x500 / 5x500	1x4/0 / 1x350

Recommended Upstream Protection and Cable Sizes for 625 kW UPS

	Maximum OCPD (A)	Cable size per phase (AWG/kcmil) Copper / Aluminum	EGC cable size (AWG/kcmil)[93] Copper / Aluminum
Input	1000 (I_r = 1.0)	3x400 / 3x600	1x2/0 / 1x4/0
Bypass	800 (I_r= 1.0)	2x600 / 3x400	1x1/0 / 1x3/0
Output	800 (I_r = 1.0)	2x600 / 3x400	1x1/0 / 1x3/0
Battery	2000 (I_r = 0.9)	5x500 / 6x500	1x250 / 1x400

Recommended Upstream Protection and Cable Sizes for 750 kW UPS

	Maximum OCPD (A)	Cable size per phase (AWG/kcmil) Copper / Aluminum	EGC cable size (AWG/kcmil)[93] Copper / Aluminum
Input	1200 (I_r = 1.0)	3x600 / 4x500	1x3/0 / 1x250
Bypass	1000 (I_r = 1.0)	3x400 / 3x600	1x2/0 / 1x4/0
Output	1000 (I_r = 1.0)	3x400 / 3x600	1x2/0 / 1x4/0
Battery	2500 (I_r = 0.9)	6x500 / 7x600	1x350 / 1x600

Recommended Upstream Protection and Cable Sizes for 800 kW UPS

	Maximum OCPD (A)	Cable size per phase (AWG/kcmil) Copper / Aluminum	EGC cable size (AWG/kcmil)[93] Copper / Aluminum
Input	1600 (I_r = 0.8)	4x400 / 4x600	1x4/0 / 1x350
Bypass	1000	3x400 / 3x600	1x2/0 / 1x4/0
Output	1000	3x400 / 3x600	1x2/0 / 1x4/0
Battery	2500 (I_r = 0.9)	6x500 / 7x600	1x350 / 1x600

93. If the conductors are run in conduits, there must be one conductor in each conduit.

Recommended Upstream Protection and Cable Sizes for 1000 kW UPS

	Maximum OCPD (A)	Cable size per phase (AWG/kcmil) Copper / Aluminum	EGC cable size (AWG/kcmil)[94] Copper / Aluminum
Input	1600 (I_r = 1.0)	4x600 / 5x600	1x4/0 / 1x350
Bypass	1600 (I_r = 0.8)	4x400 / 4x600	1x4/0 / 1x350
Output	1600 (I_r = 0.8)	4x400 / 4x600	1x4/0 / 1x350
Battery	3000 (I_r = 1.0)	8x500 / 9x600	1x400 / 1x600

Recommended Upstream Protection and Cable Sizes for 1100 kW UPS

NOTE: For a 1250 I/O cabinet, it is preferred to use flexible copper power cables with as small a diameter as possible. The number of power cables needed for this kW rating will make large and inflexible power cables more difficult to install.

	Maximum OCPD (A)	Cable size per phase (AWG/kcmil) Copper / Aluminum	EGC cable size (AWG/kcmil)[94] Copper / Aluminum
Input	2000 (I_r = 0.9)	5x500 / 6x500	1x250 / 1x400
Bypass	1600 (I_r = 0.9)	4x500 / 5x500	1x4/0 / 1x350
Output	1600 (I_r = 0.9)	4x500 / 5x500	1x4/0 / 1x350
Battery	3000 (I_r = 1.0)	8x500 / 9x600	1x400 / 1x600

Recommended Upstream Protection and Cable Sizes for 1250 kW UPS

NOTE: For a 1250 I/O cabinet, it is preferred to use flexible copper power cables with as small a diameter as possible. The number of power cables needed for this kW rating will make large and inflexible power cables more difficult to install.

	Maximum OCPD (A)	Cable size per phase (AWG/kcmil) Copper / Aluminum	EGC cable size (AWG/kcmil)[94] Copper / Aluminum
Input	2000 (I_r = 1.0)	5x600 / 6x600	1x250 / 1x400
Bypass	1600 (I_r = 1.0)	4x600 / 5x600	1x4/0 / 1x350
Output	1600 (I_r = 1.0)	4x600 / 5x600	1x4/0 / 1x350
Battery	4000 (I_r = 0.9)	9x600 / 11x600	2x250 / 2x400

94. If the conductors are run in conduits, there must be one conductor in each conduit.

Recommended Upstream Protection and Cable Sizes for 1500 kW UPS

	Maximum OCPD (A)	Cable size per phase (AWG/kcmil) Copper / Aluminum	EGC cable size (AWG/kcmil)[95] Copper / Aluminum
Input	2500[96]	6x600/ 8x600	1x350 / 1x400
Bypass	2000[96]	5x600/ 6x600	1x250 / 1x350
Output	2000[96]	5x600/ 6x600	1x250 / 1x350
Battery	5000[97]	11x600/ 14x600	1x700 kcmil/ –

Recommended Bolt and Lug Sizes for Copper Cables

Cable Size	Terminal Bolt Diameter	Cable Lug Type	Crimping Tool	Die
1/0 AWG	M12 x 35 mm	LCCF1/0–12–X	CT930	CD-920–2/0 Black P45
2/0 AWG	M12 x 35 mm	LCCF2/0–12–X	CT930	CD-920–3/0 Orange P50
3/0 AWG	M12 x 35 mm	LCCF3/0–12–X	CT930	CD-920–4/0 Purple P54
250 kcmil	M12 x 35 mm	LCCF250–12–X	CT-940CH/CT-2940	CD-920–300 White P66
300 kcmil	M12 x 35 mm	LCCF300–12–6	CT-940CH/CT-2940	CD-920–350 Red P71
400 kcmil	M12 x 35 mm	LCCF400–12–6	CT-940CH/CT-2940	CD-920–500 Brown P87
500 kcmil	M12 x 35 mm	LCCF500–12–6	CT-940CH/CT-2940	CD-920–500A Pink P99
600 kcmil	M12 x 40 mm	LCCF600–12–6	CT-940CH/CT-2940	CD-920–750 Black P106

Recommended Bolt and Lug Sizes for Aluminium Cables

Cable Size	Terminal Bolt Diameter	Cable Lug Type	Crimping Tool	Die
2/0 AWG	M12 x 40 mm	LAB2/0-12-5	CT930	Olive P54
3/0 AWG	M12 x 40 mm	LAB3/0-12-5	CT930	Ruby P60
250 kcmil	M12 x 40 mm	LAB250-12-5	CT930	Red P71
300 kcmil	M12 x 40 mm	LAB300-12-2	CT930	Blue P76
400 kcmil	M12 x 40 mm	LAB400-12-2	CT930	Green P94
500 kcmil	M12 x 40 mm	LAB500-12-2	CT930	Pink P99
600 kcmil	M12 x 40 mm	LAB600-12-2	CT930	Black P106

95. If the conductors are run in conduits, there must be one conductor in each conduit.
96. Long-time setting (I_r) = 1.0
97. Long-time setting (I_r) = 0.9

Weights and Dimensions

UPS Shipping Weights and Dimensions

	Weight kg (lbs)	Height mm (in)	Width mm (in)	Depth mm (in)
1250 kW I/O cabinet (GVXI1250KDNBF2 or GVXI1250KD)	800 (1764)	2140 (84.3)	1400 (55.1)	1060 (41.8)
1500 kW I/O cabinet (GVXI1500KD)	1060 (2337)	2140 (84.3)	2120 (83.5)	1060 (41.8)
Galaxy VX 250 kW power cabinet (GVXP250KD)	560 (1235)	2140 (84.3)	760 (29.9)	1060 (41.8)

NOTE: The Galaxy VX UPS consist of one 1250 kW I/O cabinet or one 1500 kW I/O cabinet and a minimum of two 250 kW power cabinets depending on your chosen configuration.

Weights and Dimensions for UPSs with 1250 kW I/O Cabinet

Commercial reference		Weight kg (lbs)	Height mm (in)	Width mm (in)	Depth mm (in)
• GVX500K500NGS • GVX500K750NGS • GVX500K1000NGS • GVX500K1250NGS	Total – Power cabinets – I/O cabinet	1700 (3748) 2 x 540 (2 x 1190) 620 (1367)	1970 (77.6)	2400 (94.5) 2 x 600 (2 x 23.6) 1200 (47.2)	900 (35.4)
• GVX625K625NGS • GVX625K1000NGS • GVX750K500NGS • GVX750K750NGS • GVX750K1000NGS • GVX750K1250NGS	Total – Power cabinets – I/O cabinet	2240 (4938) 3 x 540 (3 x 1190) 620 (1367)	1970 (77.6)	3000 (118.1) 3 x 600 (3 x 23.6) 1200 (47.2)	900 (35.4)
• GVX800K800NGS • GVX1000K750NGS • GVX1000K1000NGS • GVX1000K1250NGS	Total – Power cabinets – I/O cabinet	2780 (6129) 4 x 540 (4 x 1190) 620 (1367)	1970 (77.6)	3600 (141.7) 4 x 600 (4 x 23.6) 1200 (47.2)	900 (35.4)
• GVX1100K1100NGS • GVX1250K1000NGS • GVX1250K1250NGS	Total – Power cabinets – I/O cabinet	3320 (7319) 5 x 540 (5 x 1190) 620 (1367)	1970 (77.6)	4200 (165.4) 5 x 600 (5 x 23.6) 1200 (47.2)	900 (35.4)
• GVX1500K1100NGS • GVX1500K1250NGS	Total – Power cabinets – I/O cabinet	3860 (8510) 6 x 540 (6 x 1190) 620 (1367)	1970 (77.6)	4800 (189.0) 6 x 600 (6 x 23.6) 1200 (47.2)	900 (35.4)

Weights and Dimensions for UPSs with 1500 kW I/O Cabinet

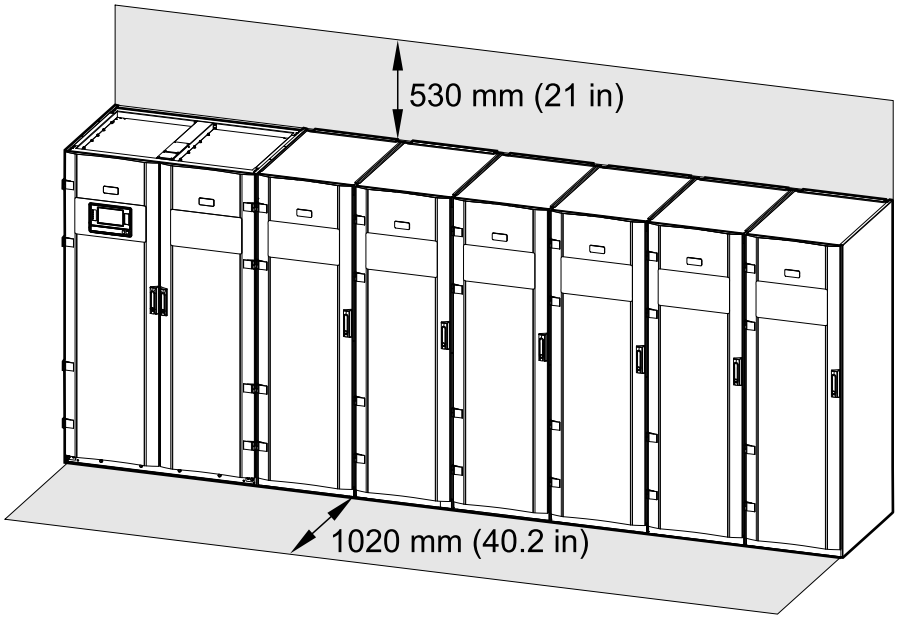
Commercial reference		Weight kg (lbs)	Height mm (in)	Width mm (in)	Depth mm (in)
• GVX500K1500GS	Total – Power cabinets – I/O cabinet	1956 (4312) 2 x 540 (2 x 1190) 876 (1931)	1970 (77.6)	3200 (126.0) 2 x 600 (2 x 23.6) 2000 (78.7)	900 (35.4)
• GVX750K1500GS	Total – Power cabinets – I/O cabinet	2496 (5503) 3 x 540 (3 x 1190) 876 (1931)	1970 (77.6)	3800 (149.6) 3 x 600 (3 x 23.6) 2000 (78.7)	900 (35.4)
• GVX1000K1500GS	Total – Power cabinets – I/O cabinet	3036 (6693) 4 x 540 (4 x 1190) 876 (1931)	1970 (77.6)	4400 (173.2) 4 x 600 (4 x 23.6) 2000 (78.7)	900 (35.4)
• GVX1250K1500GS	Total – Power cabinets – I/O cabinet	3576 (7884) 5 x 540 (5 x 1190) 876 (1931)	1970 (77.6)	5000 (196.9) 5 x 600 (5 x 23.6) 2000 (78.7)	900 (35.4)
• GVX1500K1500GS	Total – Power cabinets – I/O cabinet	4116 (9074) 6 x 540 (6 x 1190) 876 (1931)	1970 (77.6)	5600 (220.5) 6 x 600 (6 x 23.6) 2000 (78.7)	900 (35.4)
• GVX1750K1500GS	Total – Power cabinets – I/O cabinet	4656 (10265) 7 x 540 (7 x 1190) 876 (1931)	1970 (77.6)	6200 (244.1) 7 x 600 (7 x 23.6) 2000 (78.7)	900 (35.4)

Clearance

Clearance for UPSs with 1250 kW I/O Cabinet

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

NOTE: The UPS system can be placed up against a wall and there is no requirement for rear or side access.

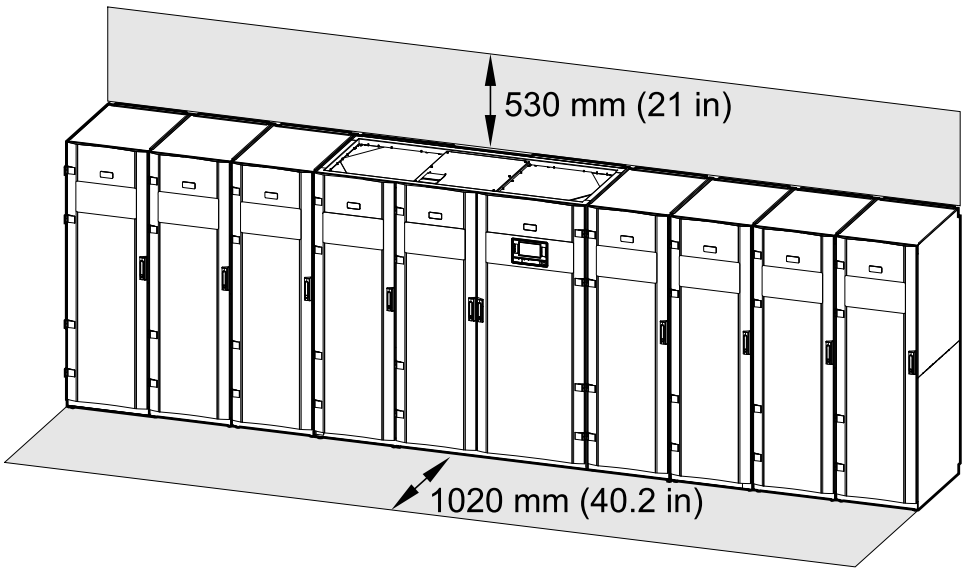


Clearance for UPSs with 1500 kW I/O Cabinet

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

NOTE: The UPS system can be placed up against a wall with no requirement for rear or side access.

Front View

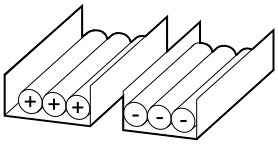
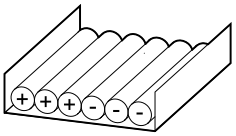
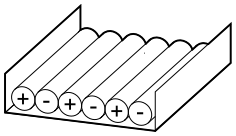
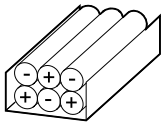


Guidance for Organizing Battery Cables

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

Torque Specifications

⚠⚠WARNING

HAZARD OF ELECTRIC SHOCK

All electrical connections must be torqued according to this table.

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

Bolt size	**Torque**
M6	5 Nm (3.69 lb-ft)
M8	17.5 Nm (12.91 lb-ft)
M10	30 Nm (22 lb-ft)
M12	50 Nm (36.87 lb-ft)

Environment

	Operating	Storage
Temperature	0 °C to 40 °C (32 °F to 104 °F) 0 °C to 50 °C (32 °F to 122 °F) when derated to 75% power[98]	-15 °C to 40 °C (5 °F to 104 °F) for systems with batteries -25 °C to 55 °C (-13 °F to 131 °F) for systems without batteries
Relative humidity	5-95% non-condensing	10-80% non-condensing
Elevation derating according to ANSI C57.96–1999[99]	1000 m (3300 ft): 1.000 1500 m (5000 ft): 0.975 2000 m (6600 ft): 0.950 2500 m (8300 ft): 0.925 3000 m (10000 ft): 0.900	0-15000 m (0-50000 ft)
Audible noise one meter (three feet) from unit	62 dB at 70% load 69.5 dB at 100% load for 400 V systems 68 dB at 100% load for 480 V systems	
Protection class	IP20	
Color	RAL 9003 white	

98. For temperatures between 40 °C (104 °F) and 50 °C (122 °F), the load power rating must be derated with 2.5% per °C of rated output power. Above 40 °C (104 °F) the minimum input voltage is 340 V, and from 380 V to 340 V, the charge power must be linearly derated from 12% to 1%.
99. Maximum operation elevation is 3000 m (10000 ft).

Heat Dissipation (BTU/hr) for UPSs with 1250 kW I/O Cabinet

Heat Dissipation for 500 kW UPS

	Normal operation					ECO mode				
Voltage (V)	**380**	**400**	**415**	**440 V**	**480 V**	**380**	**400**	**415**	**440 V**	**480 V**
25% load	17771	21504	21504	21504	22920	11385	16847	16387	14099	11835
50% load	34617	38327	38327	37397	36468	8616	11235	10360	12112	13870
75% load	56095	58889	58889	56095	53313	12924	15540	15540	15540	15540
100% load	78519	80387	78519	75723	72936	13758	17232	17232	17232	17232

	eConversion					Battery operation				
Voltage (V)	**380**	**400**	**415**	**440 V**	**480 V**	**380**	**400**	**415**	**440 V**	**480 V**
25% load	4308	7376	6935	10264	13644	14555	15469	15011	15011	15011
50% load	13870	12990	16521	16078	15635	29110	29110	30938	30938	29110
75% load	12924	14231	14231	15540	16853	75903	47782	49160	49160	49160
100% load	17232	13758	13758	16362	18975	71083	74793	80387	80387	72936

Heat Dissipation for 625 kW UPS

	Normal operation					ECO mode				
Voltage (V)	**380**	**400**	**415**	**440 V**	**480 V**	**380**	**400**	**415**	**440 V**	**480 V**
25% load	27469	26880	26880	26880	28059	10880	13110	13670	13670	13670
50% load	47909	47909	47909	45006	42118	11859	14044	15139	15139	15139
75% load	73611	73611	73611	67509	61451	16155	19426	19426	19426	19426
100% load	114602	100484	98149	91170	84236	23718	25901	25901	23718	21540

	eConversion					Battery operation				
Voltage (V)	**380**	**400**	**415**	**440 V**	**480 V**	**380**	**400**	**415**	**440 V**	**480 V**
25% load	15922	15922	10880	13390	15922	17056	17056	18764	18764	18764
50% load	17337	17337	17337	17337	17337	40967	39818	38672	38672	36387
75% load	21066	21066	21066	21066	21066	61451	61451	61451	61451	61451
100% load	25901	25901	25901	24809	23718	86543	84236	100484	100484	91170

Heat Dissipation for 750 kW UPS

	Normal operation					ECO mode				
Voltage (V)	**380**	**400**	**415**	**440 V**	**480 V**	**380**	**400**	**415**	**440 V**	**480 V**
25% load	28745	30847	30847	30847	30847	10402	13056	13723	13723	13723
50% load	56095	56095	54702	53313	51926	14231	16853	18167	18167	18167
75% load	94653	92542	86236	83097	79969	19386	23311	23311	23311	23311
100% load	146074	137523	129025	120581	112190	25848	28462	28462	28462	28462

	eConversion					Battery operation				
Voltage (V)	**380**	**400**	**415**	**440 V**	**480 V**	**380**	**400**	**415**	**440 V**	**480 V**
25% load	15061	15061	9084	12058	15061	21832	21832	22517	22517	23203
50% load	19485	19485	19485	19485	19485	45034	43664	45034	45034	45034
75% load	25279	25279	25279	25279	25279	77888	75812	75812	75812	75812
100% load	31081	31081	31081	29771	28462	114981	112190	112190	112190	112190

Heat Dissipation for 800 kW UPS

	Normal operation					ECO mode				
Voltage (V)	**380**	**400**	**415**	**440 V**	**480 V**	**380**	**400**	**415**	**440 V**	**480 V**
25% load	35160	35160	34407	34407	34407	15351	15351	8988	8988	8988
50% load	59835	58349	56867	55387	53911	19378	19378	15180	15180	15180
75% load	91985	89752	85300	84190	83081	22770	22770	22770	22770	22770
100% load	131616	128620	119669	112253	104876	30360	27572	27572	27572	27572

	eConversion					Battery operation				
Voltage (V)	**380**	**400**	**415**	**440 V**	**480 V**	**380**	**400**	**415**	**440 V**	**480 V**
25% load	17497	18216	17497	17857	18216	26956	21831	21105	21105	7590
50% load	20784	20784	20784	20784	20784	50968	43662	48036	48036	48036
75% load	24865	24865	24865	24865	24865	78657	65493	67676	67676	67676
100% load	30360	30360	27572	26180	24790	113733	101935	104876	104876	104876

Heat Dissipation for 1000 kW UPS

	Normal operation					ECO mode				
Voltage (V)	**380**	**400**	**415**	**440 V**	**480 V**	**380**	**400**	**415**	**440 V**	**480 V**
25% load	36468	39259	39259	39259	39259	12112	15635	16521	16521	16521
50% load	71083	71083	69234	69234	65547	15493	18975	20721	20721	20721
75% load	120581	117778	109405	109405	101083	20637	25848	25848	25848	25848
100% load	187156	175802	164520	164520	142167	27516	30987	30987	30987	30987

	eConversion					Battery operation				
Voltage (V)	**380**	**400**	**415**	**440 V**	**480 V**	**380**	**400**	**415**	**440 V**	**480 V**
25% load	18297	18297	10360	14311	18297	28198	28198	29110	29110	30023
50% load	22470	22470	22470	22470	22470	58219	56397	58219	58219	58219
75% load	28462	28462	28462	28462	28462	101083	98321	98321	98321	98321
100% load	34465	34465	34465	32725	30987	149587	145873	145873	145873	145873

Heat Dissipation for 1100 kW UPS

	Normal operation					ECO mode				
Voltage (V)	**380**	**400**	**415**	**440 V**	**480 V**	**380**	**400**	**415**	**440 V**	**480 V**
25% load	43185	43185	42160	43185	41136	18173	17199	17199	16713	16227
50% load	82273	78192	76158	76158	70080	22793	22793	22793	21832	20872
75% load	132639	123409	120345	120345	108153	28433	25564	25564	26998	28433
100% load	201700	185100	180972	180972	152315	37911	37911	37911	35997	34086

	eConversion					Battery operation				
Voltage (V)	**380**	**400**	**415**	**440 V**	**480 V**	**380**	**400**	**415**	**440 V**	**480 V**
25% load	21107	21107	20127	18173	21107	35040	37064	36051	32021	36051
50% load	24717	22793	24717	22793	24717	66050	66050	70080	64041	68063
75% load	34189	34189	34189	28433	31308	163830	102095	105121	108153	105121
100% load	53291	41744	41744	34086	37911	156383	164545	176852	160460	152315

Heat Dissipation for 1250 kW UPS

	Normal operation					ECO mode				
Voltage (V)	**380**	**400**	**415**	**440 V**	**480 V**	**380**	**400**	**415**	**440 V**	**480 V**
25% load	49074	49074	47909	47909	46746	20651	19544	19544	18992	18440
50% load	93492	88854	86543	83084	79637	25901	25901	25901	24809	23718
75% load	154237	143726	140237	133281	126354	35578	32311	32311	30680	29050
100% load	233945	215042	210341	193965	177708	43081	43081	43081	40906	38734

	eConversion					Battery operation				
Voltage (V)	**380**	**400**	**415**	**440 V**	**480 V**	**380**	**400**	**415**	**440 V**	**480 V**
25% load	22872	22872	21760	22316	22872	36387	38672	37528	37528	37528
50% load	28088	25901	28088	28088	28088	72774	72774	77345	77345	75057
75% load	35578	35578	35578	33943	32311	119455	119455	122901	122901	122901
100% load	56175	43081	43081	40906	38734	177708	186983	200969	200969	173085

Heat Dissipation (BTU/hr) for UPSs with 1500 kW I/O Cabinet

Heat Dissipation for 500 kW UPS

	Normal operation					ECO mode				
Voltage (V)	**380**	**400**	**415**	**440 V**	**480 V**	**380**	**400**	**415**	**440 V**	**480 V**
25% load	17309	16387	16387	16387	18698	5618	5618	5618	6056	6495
50% load	32774	30938	30938	31396	31855	7747	7747	7747	7747	7747
75% load	53313	50542	50542	50542	50542	11620	11620	11620	10969	10319
100% load	86017	82260	82260	75723	69234	13758	13758	13758	13758	13758

	eConversion					Battery operation				
Voltage (V)	**380**	**400**	**415**	**440 V**	**480 V**	**380**	**400**	**415**	**440 V**	**480 V**
25% load	6495	6495	6495	7155	7818	18234	18234	18234	18234	18234
50% load	7747	7747	7747	7747	7747	31855	31855	31855	31855	31855
75% load	11620	11620	11620	10969	10319	53313	53313	53313	53313	53313
100% load	15493	13758	13758	13758	13758	78519	78519	78519	78519	78519

Heat Dissipation for 750 kW UPS

	Normal operation					ECO mode				
Voltage (V)	**380**	**400**	**415**	**440 V**	**480 V**	**380**	**400**	**415**	**440 V**	**480 V**
25% load	26656	25271	25271	25271	27351	9084	9084	9084	9413	9742
50% load	51926	49160	49160	47782	46407	12924	12924	12924	12272	11620
75% load	86236	82053	82053	77888	73741	17430	17430	17430	16453	15478
100% load	134684	129025	129025	117778	106625	23240	23240	23240	21938	20637

	eConversion					Battery operation				
Voltage (V)	**380**	**400**	**415**	**440 V**	**480 V**	**380**	**400**	**415**	**440 V**	**480 V**
25% load	9742	9742	9742	10733	11727	27351	27351	27351	27351	27351
50% load	12924	12924	12924	12924	12924	47782	47782	47782	47782	47782
75% load	17430	17430	17430	16453	15478	79969	79969	79969	79969	79969
100% load	23240	23240	23240	21938	20637	117778	117778	117778	117778	117778

Heat Dissipation for 1000 kW UPS

	Normal operation					ECO mode				
Voltage (V)	**380**	**400**	**415**	**440 V**	**480 V**	**380**	**400**	**415**	**440 V**	**480 V**
25% load	36468	34617	34617	33888	36468	12112	12112	12112	12112	12112
50% load	71083	67389	67389	60137	61876	17232	17232	17232	16362	15493
75% load	123390	117778	117778	98514	95564	23240	23240	23240	21938	20637
100% load	187156	179579	179579	149141	145873	30987	30987	30987	29251	27516

	eConversion					Battery operation				
Voltage (V)	**380**	**400**	**415**	**440 V**	**480 V**	**380**	**400**	**415**	**440 V**	**480 V**
25% load	13334	13334	13334	14313	15294	36468	35819	36468	36468	36468
50% load	17254	17254	17254	16956	16657	63710	62976	63710	63710	63710
75% load	24358	24358	24358	22496	20637	106625	104128	106625	106625	106625
100% load	31342	31342	31342	29428	27516	157038	156664	157038	157038	157038

Heat Dissipation for 1250 kW UPS

	Normal operation					ECO mode				
Voltage (V)	**380**	**400**	**415**	**440 V**	**480 V**	**380**	**400**	**415**	**440 V**	**480 V**
25% load	44427	42118	42118	42118	44427	12950	12950	12950	13497	14044
50% load	86543	81934	81934	78490	75057	19367	19367	19367	18282	17198
75% load	147223	140237	140237	129814	119455	25796	25796	25796	24172	22549
100% load	224474	215042	215042	196297	177708	30065	30065	30065	30065	30065

	eConversion					Battery operation				
Voltage (V)	**380**	**400**	**415**	**440 V**	**480 V**	**380**	**400**	**415**	**440 V**	**480 V**
25% load	15569	15569	15569	17156	18748	45585	45585	45585	45585	45585
50% load	19394	19394	19394	19721	20047	79637	79637	79637	79637	79637
75% load	27191	27191	27191	25681	24172	133281	133281	133281	133281	133281
100% load	34838	34838	34838	32451	30065	196297	196297	196297	196297	196297

Heat Dissipation for 1500 kW UPS

	Normal operation					ECO mode				
Voltage (V)	**380**	**400**	**415**	**440 V**	**480 V**	**380**	**400**	**415**	**440 V**	**480 V**
25% load	53313	50542	50542	50680	53313	15540	15540	15540	16131	16853
50% load	103851	98321	98321	91275	92813	23240	23240	23240	21626	23240
75% load	176667	168285	168285	151832	147481	30956	30956	30956	28889	27059
100% load	269368	258050	258050	234549	213250	36079	36079	36079	37428	36079

	eConversion					Battery operation				
Voltage (V)	**380**	**400**	**415**	**440 V**	**480 V**	**380**	**400**	**415**	**440 V**	**480 V**
25% load	18683	18683	18683	17234	22054	54702	51372	54702	54702	54285
50% load	23273	23273	23273	20325	23129	95564	95014	95564	95564	96666
75% load	32629	32629	32629	26436	27059	159938	159521	159938	159938	154530
100% load	41806	41806	41806	35819	36079	235556	236677	235556	235556	229962

Options

Configuration Options

- eConversion mode
- Single or dual feed
- Default top or bottom cable entry
- N+1 redundancy
- Up to 4+1 UPSs in parallel
- Generator compatible
- Internal synchronization to alternate source (single system)
- Seismic rated brackets included
- Touchscreen LCD
- ECO mode

Hardware Options

Power Cabinet

- Galaxy VX 250 kW power cabinet (GVXP250KD)

Lithium-Ion Battery Cabinet

- Galaxy Lithium-ion battery cabinet with 17 battery modules (LIBSESMG17UL)
- Galaxy Lithium-ion battery communication cables 25 m (82 ft) (LIBSEOPT001)
- Galaxy Lithium-ion Battery Cabinet SMPS AC/DC Converter (LIBSEOPT002)

Maintenance Bypass Cabinets

- Galaxy VX 625 kW 480 V remote maintenance bypass cabinet (GVXMBCR625KG)
- Galaxy VX 750 kW 480 V remote maintenance bypass cabinet (GVXMBCR750KG)

Bypass Inductor Cabinet

- Galaxy VX 1250 kW Bypass Inductor Cabinet with Busbar Kit (GVXINDUCASSY)

Network Management Cards and Accessories

- Network management card 2 with environmental monitoring (AP9635)
- Network Management Card 3 with environmental monitoring (AP9643)
- Dry contact I/O accessory (AP9810)
- Temperature sensor (AP9335T)
- Temperature and humidity sensor (AP9335TH)

Options

- Backfeed protection kit, 1250 kW (GVXOPT001)[100]
- Galaxy VX Lithium-ion BMS Power Supply Kit (GVXOPT002)[100]
- Symmetra PX 250/500 paralleling cable kit (25 meters (82 feet) long) (SYOPT008)

100. Only applicable for 1250 kW I/O cabinet without preinstalled backfeed breaker BF2.

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