Galaxy VS

UPS for External Batteries

Technical Specifications

20-100 kW 400/480 V
10-50 kW 208 V

1/2019



www.schneider-electric.com

Legal Information

The Schneider Electric brand and any registered trademarks of Schneider Electric Industries SAS referred to in this guide are the sole property of Schneider Electric SA and its subsidiaries. They may not be used for any purpose without the owner's permission, given in writing. This guide and its content are protected, within the meaning of the French intellectual property code (Code de la propriété intellectuelle français, referred to hereafter as "the Code"), under the laws of copyright covering texts, drawings and models, as well as by trademark law. You agree not to reproduce, other than for your own personal, noncommercial use as defined in the Code, all or part of this guide on any medium whatsoever without Schneider Electric's permission, given in writing. You also agree not to establish any hypertext links to this guide or its content. Schneider Electric does not grant any right or license for the personal and noncommercial use of the guide or its content, except for a non-exclusive license to consult it on an "as is" basis, at your own risk. All other rights are reserved.

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

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

IEC UL

Go to
IEC: *https://www.productinfo.schneider-electric.com/portals/ui/galaxyvs_iec/* or
UL: *https://www.productinfo.schneider-electric.com/portals/ui/galaxyvs_ul/*
or scan the QR code above for digital experience and translated manuals.

Table of Contents

Important Safety Instructions — SAVE THESE INSTRUCTIONS 5
FCC Statement 6
Electromagnetic Compatibility 6
Safety Precautions 6
Model list 8
Input Voltage Window 9
Inverter Short Circuit Capabilities (Bypass not Available) 12
Efficiency 13
Derating Due to Load Power Factor 16
Batteries 17
End of Discharge Voltage 17
Battery Voltage Window 17
Compliance 18
Communication and Management 19
EPO 19
Configurable Input Contacts and Output Relays 20
Requirements for a Third Party Battery Solution 21
Third Party Battery Breaker Requirements 21
Guidance for Organizing Battery Cables 22
Specifications 23
Specifications for 400 V Systems 23
Input Specifications 400 V 23
Bypass Specifications 400 V 23
Output Specifications 400 V 24
Battery Specifications 400 V 25
Recommended Cable Sizes 400 V 26
Recommended Upstream Protection 400 V 27
Specifications for 480 V Systems 28
Input Specifications 480 V 28
Bypass Specifications 480 V 28
Output Specifications 480 V 29
Battery Specifications 480 V 30
Recommended Cable Sizes 480 V 31
Recommended Upstream Protection 480 V 32
Specifications for 208 V Systems 33
Input Specifications 208 V 33
Bypass Specifications 208 V 33
Output Specifications 208 V 34
Battery Specifications 208 V 35
Recommended Cable Sizes 208 V 36
Recommended Upstream Protection 208 V 37
Torque Specifications 38
Physical 39
UPS Shipping Weights and Dimensions 39
UPS Weights and Dimensions 39

Clearance 40
Weights and Dimensions for Auxiliary Products Available in IEC Region 41
Maintenance Bypass Panel Shipping Weights and Dimensions 41
Maintenance Bypass Panel Weights and Dimensions 41
Classic Battery Cabinet Shipping Weights and Dimensions 41
Classic Battery Cabinet Weights and Dimensions 41
Battery Breaker Box Shipping Weights and Dimensions 41
Battery Breaker Box Weights and Dimensions 41
Empty Battery Cabinet Shipping Weight and Dimensions 42
Empty Battery Cabinet Weight and Dimensions 42
Weights and Dimensions for Auxiliary Products Available in UL Region 43
Maintenance Bypass Cabinet Shipping Weights and Dimensions 43
Maintenance Bypass Cabinet Weights and Dimensions 43
Maintenance Bypass Cabinet with Transformer Shipping Weights and Dimensions 43
Maintenance Bypass Cabinet with Transformer Weights and Dimensions 43
Classic Battery Cabinet Shipping Weights and Dimensions 43
Classic Battery Cabinet Weights and Dimensions 44
Environment 45
Heat Dissipation 45
Drawings 49
20–50 kW 400 V/480 V and 10–25 kW 208 V UPS 50
60–100 kW 400 V/480 V and 30–50 kW 208 V UPS 51
Options 52
Hardware Options for IEC Region 52
Hardware Options for UL Region 54
Configuration Options 56
Limited Factory Warranty 57

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.

Electromagnetic Compatibility

NOTICE

RISK OF ELECTROMAGNETIC DISTURBANCE

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

Failure to follow these instructions can result in equipment damage.

Safety Precautions

⚠DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

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

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

⚠DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

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

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

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

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

⚠DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

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

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

⚠DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

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

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

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

NOTICE

RISK OF OVERHEATING

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

Failure to follow these instructions can result in equipment damage.

NOTICE

RISK OF EQUIPMENT DAMAGE

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

Failure to follow these instructions can result in equipment damage.

Model list

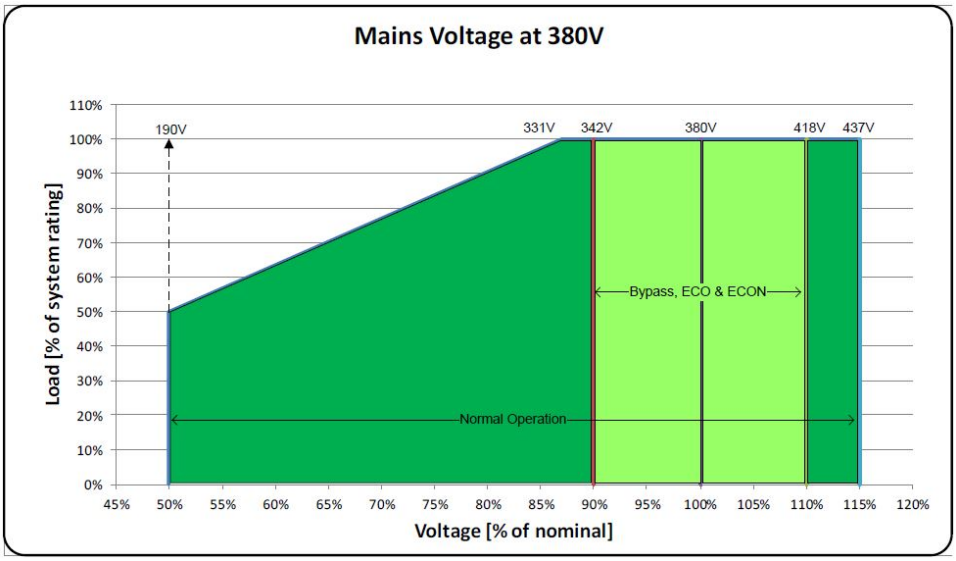


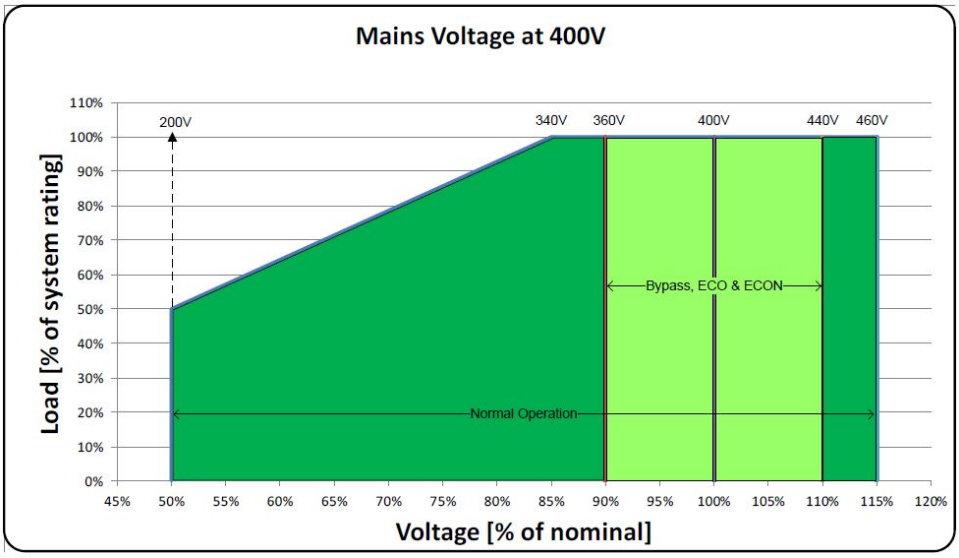
- Galaxy VS UPS 20 kW 400 V for external batteries, start-up 5x8 (GVSUPS20KHS)
- Galaxy VS UPS 30 kW 400 V for external batteries, start-up 5x8 (GVSUPS30KHS)
- Galaxy VS UPS 40 kW 400 V for external batteries, start-up 5x8 (GVSUPS40KHS)
- Galaxy VS UPS 50 kW 400 V for external batteries, start-up 5x8 (GVSUPS50KHS)
- Galaxy VS UPS 60 kW 400 V for external batteries, start-up 5x8 (GVSUPS60KHS)
- Galaxy VS UPS 80 kW 400 V for external batteries, start-up 5x8 (GVSUPS80KHS)
- Galaxy VS UPS 100 kW 400 V for external batteries, start-up 5x8 (GVSUPS100KHS)

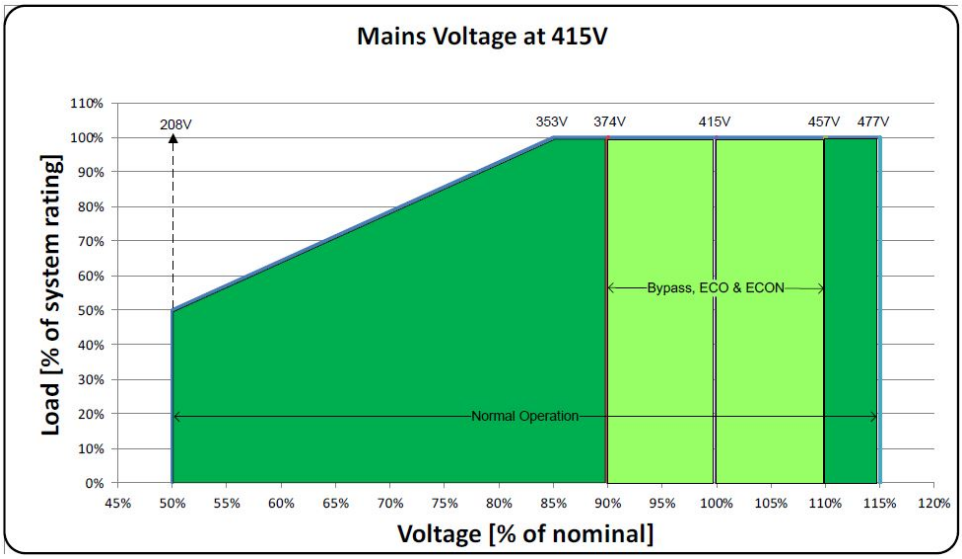
- Galaxy VS UPS 20 kW 480 V for external batteries, start-up 5x8 (GVSUPS20KGS)
- Galaxy VS UPS 30 kW 480 V for external batteries, start-up 5x8 (GVSUPS30KGS)
- Galaxy VS UPS 40 kW 480 V for external batteries, start-up 5x8 (GVSUPS40KGS)
- Galaxy VS UPS 50 kW 480 V for external batteries, start-up 5x8 (GVSUPS50KGS)
- Galaxy VS UPS 60 kW 480 V for external batteries, start-up 5x8 (GVSUPS60KGS)
- Galaxy VS UPS 80 kW 480 V for external batteries, start-up 5x8 (GVSUPS80KGS)
- Galaxy VS UPS 100 kW 480 V for external batteries, start-up 5x8 (GVSUPS100KGS)

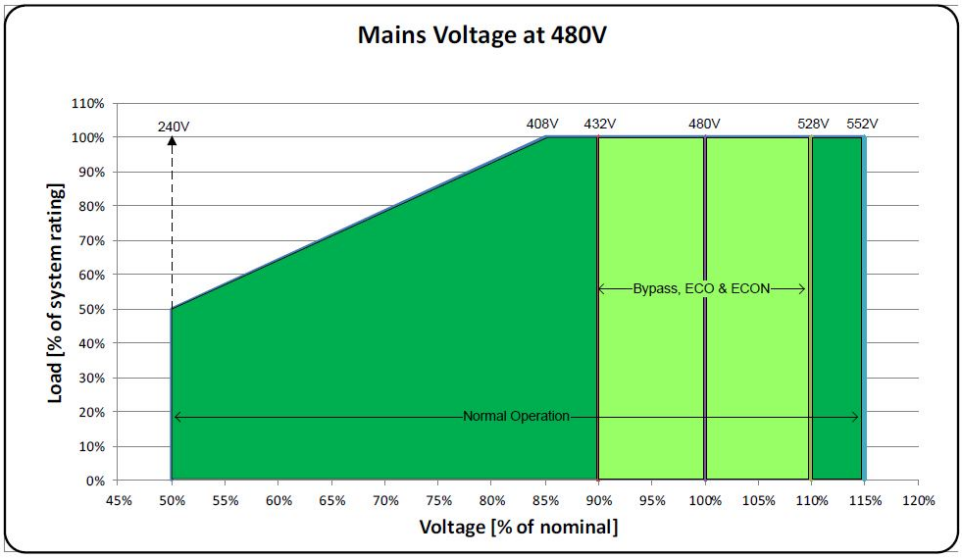
- Galaxy VS UPS 10 kW 208 V for external batteries, start-up 5x8 (GVSUPS10KFS)
- Galaxy VS UPS 15 kW 208 V for external batteries, start-up 5x8 (GVSUPS15KFS)
- Galaxy VS UPS 20 kW 208 V for external batteries, start-up 5x8 (GVSUPS20KFS)
- Galaxy VS UPS 25 kW 208 V for external batteries, start-up 5x8 (GVSUPS25KFS)
- Galaxy VS UPS 30 kW 208 V for external batteries, start-up 5x8 (GVSUPS30KFS)
- Galaxy VS UPS 40 kW 208 V for external batteries, start-up 5x8 (GVSUPS40KFS)
- Galaxy VS UPS 50 kW 208 V for external batteries, start-up 5x8 (GVSUPS50KFS)

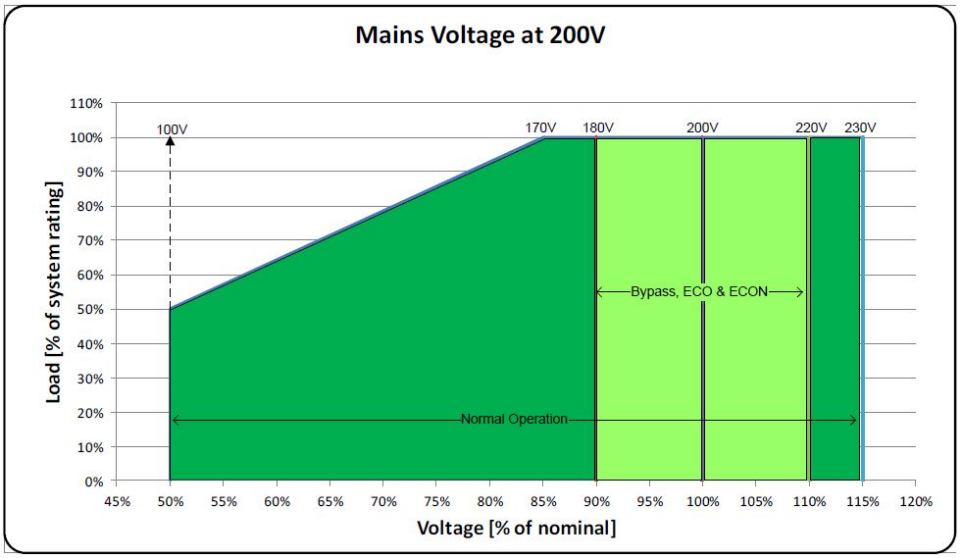
Input Voltage Window

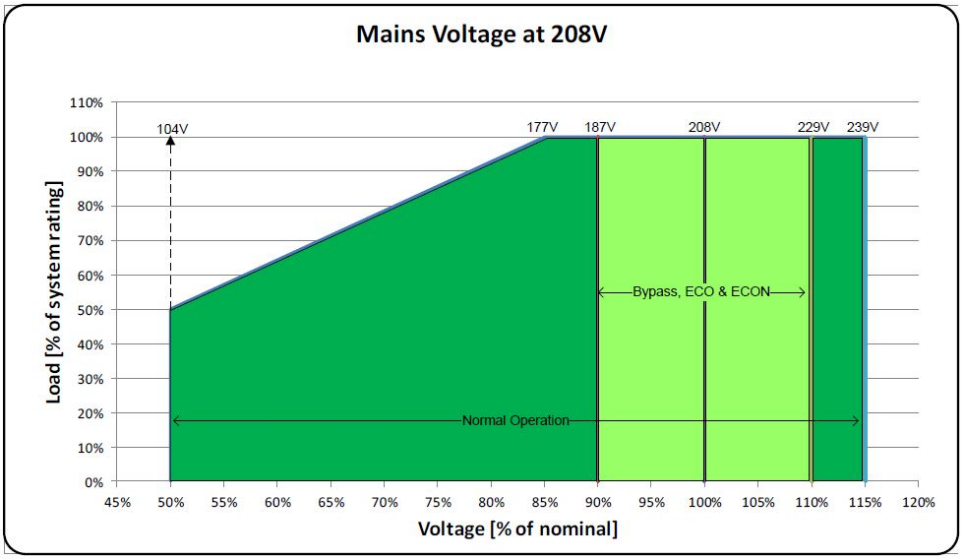


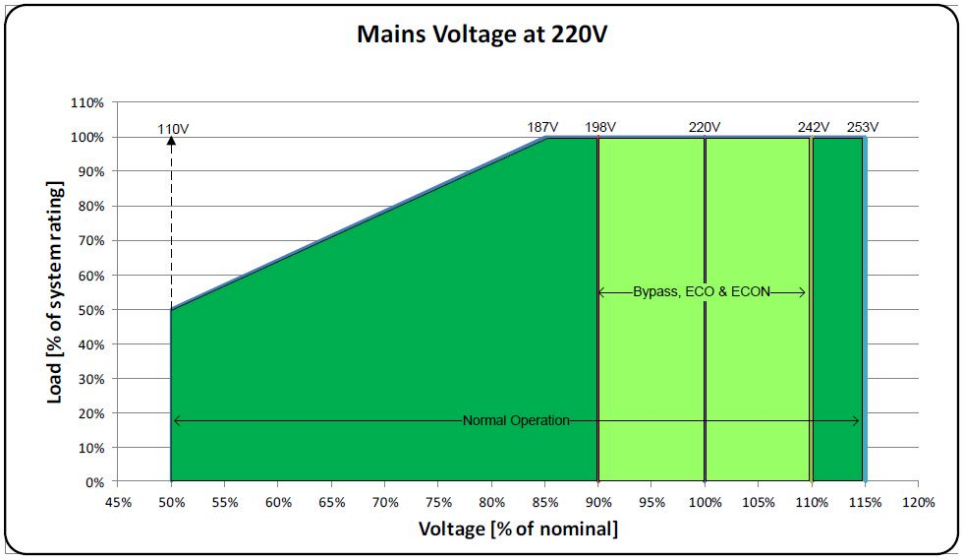





Mains Voltage at 480V
Load [% of system rating]
Voltage [% of nominal]
240V
408V
432V
480V
528V
552V
Bypass, ECO & ECON
Normal Operation

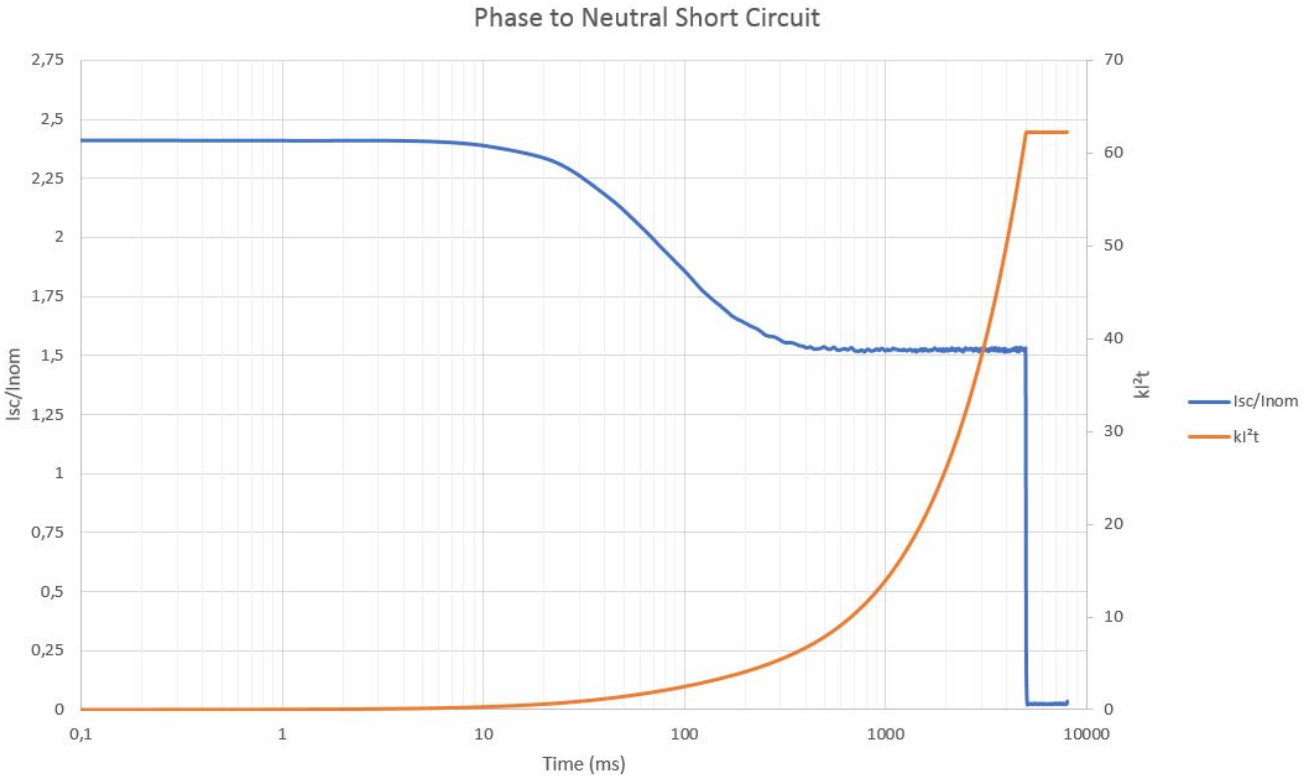

Mains Voltage at 200V
Load [% of system rating]
Voltage [% of nominal]
100V
170V
180V
200V
220V
230V
Bypass, ECO & ECON
Normal Operation


Mains Voltage at 208V
Load [% of system rating]
Voltage [% of nominal]
104V
177V
187V
208V
229V
239V
Bypass, ECO & ECON
Normal Operation

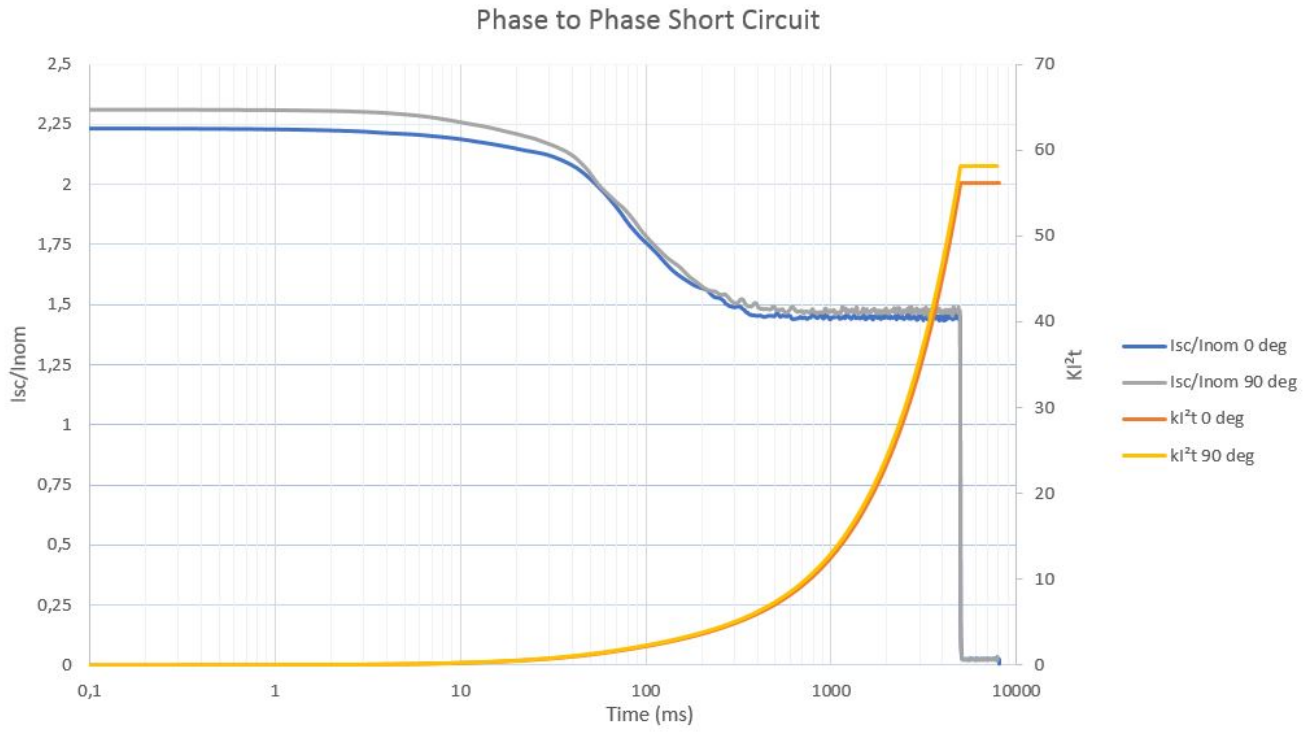

Mains Voltage at 220V
Load [% of system rating]
110%
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
110V
187V
198V
220V
242V
253V
Bypass, ECO & ECON
Normal Operation
45%
50%
55%
60%
65%
70%
75%
80%
85%
90%
95%
100%
105%
110%
115%
120%
Voltage [% of nominal]

Inverter Short Circuit Capabilities (Bypass not Available)

IK1 – Short Circuit between a Phase and Neutral



IK2 – Short Circuit between Two Phases



Efficiency

400 V and 480 V Systems

20 kW

UPS rating	Normal operation				ECO mode				ECOnversion			
Voltage (V)	380	400	415	480	380	400	415	480	380	400	415	480
25% load	94.0%	94.1%	94.1%	93.6%	96.9%	96.7%	96.7%	96.8%	95.6%	95.4%	95.3%	94.9%
50% load	95.7%	96.0%	95.9%	95.8%	98.1%	98.2%	98.2%	98.2%	97.7%	97.6%	97.6%	97.2%
75% load	96.4%	96.6%	96.6%	96.5%	98.6%	98.7%	98.7%	98.7%	98.4%	98.3%	98.3%	98.1%
100% load	96.7%	96.9%	96.9%	96.9%	98.8%	98.9%	98.9%	98.9%	98.7%	98.7%	98.7%	98.5%

30 kW

UPS rating	Normal operation				ECO mode				ECOnversion			
Voltage (V)	380	400	415	480	380	400	415	480	380	400	415	480
25% load	95.0%	95.3%	95.3%	95.0%	97.7%	97.7%	97.7%	97.7%	97.0%	96.9%	96.8%	96.5%
50% load	96.4%	96.6%	96.6%	96.5%	98.6%	98.7%	98.7%	98.7%	98.4%	98.3%	98.3%	98.1%
75% load	96.7%	96.9%	96.9%	97.0%	98.9%	98.9%	99.0%	99.0%	98.8%	98.8%	98.8%	98.7%
100% load	96.8%	96.8%	97.0%	97.2%	99.1%	99.1%	99.1%	99.2%	99.0%	99.0%	99.0%	98.9%

40 kW

UPS rating	Normal operation				ECO mode				ECOnversion			
Voltage (V)	380	400	415	480	380	400	415	480	380	400	415	480
25% load	95.7%	96.0%	95.9%	95.8%	98.1%	98.2%	98.2%	98.2%	97.7%	97.6%	97.6%	97.2%
50% load	96.7%	96.9%	96.9%	96.9%	98.8%	98.9%	98.9%	98.9%	98.7%	98.7%	98.7%	98.5%
75% load	96.8%	96.8%	97.0%	97.2%	99.1%	99.1%	99.1%	99.2%	99.0%	99.0%	99.0%	98.9%
100% load	96.7%	96.5%	96.9%	97.3%	99.2%	99.2%	99.2%	99.3%	99.2%	99.2%	99.2%	99.2%

50 kW

UPS rating	Normal operation				ECO mode				ECOnversion			
Voltage (V)	380	400	415	480	380	400	415	480	380	400	415	480
25% load	96.2%	96.4%	96.3%	96.2%	98.4%	98.5%	98.4%	98.5%	98.1%	98.0%	98.0%	97.8%
50% load	96.8%	96.9%	97.0%	97.1%	99.0%	99.0%	99.0%	99.1%	98.9%	98.9%	98.9%	98.8%
75% load	96.7%	96.7%	97.0%	97.3%	99.2%	99.2%	99.2%	99.2%	99.2%	99.1%	99.1%	99.1%
100% load	96.4%	96.1%	96.8%	97.2%	99.2%	99.3%	99.3%	99.3%	99.3%	99.3%	99.3%	99.3%

60 kW

UPS rating	Normal operation				ECO mode				ECOnversion			
Voltage (V)	380	400	415	480	380	400	415	480	380	400	415	480
25% load	95.6%	95.7%	95.8%	95.4%	98.3%	98.2%	98.3%	98.2%	97.5%	97.4%	97.4%	97.0%
50% load	96.7%	97.0%	96.8%	96.8%	98.9%	98.9%	98.9%	98.9%	98.6%	98.6%	98.6%	98.4%
75% load	96.9%	97.1%	97.1%	97.2%	99.1%	99.1%	99.1%	99.1%	99.0%	99.0%	99.0%	98.9%
100% load	96.9%	97.1%	97.1%	97.3%	99.2%	99.2%	99.2%	99.3%	99.1%	99.1%	99.1%	99.1%

80 kW

UPS rating	Normal operation				ECO mode				ECOnversion			
Voltage (V)	380	400	415	480	380	400	415	480	380	400	415	480
25% load	96.2%	96.3%	96.3%	96.1%	98.6%	98.6%	98.6%	98.6%	98.1%	98.0%	98.0%	97.7%
50% load	96.9%	97.1%	97.0%	97.1%	99.0%	99.1%	99.1%	99.1%	98.9%	98.9%	98.9%	98.8%
75% load	96.9%	97.1%	97.1%	97.3%	99.2%	99.2%	99.2%	99.3%	99.1%	99.1%	99.1%	99.1%
100% load	96.8%	97.0%	97.1%	97.3%	99.3%	99.3%	99.3%	99.3%	99.3%	99.3%	99.3%	99.3%

100 kW

UPS rating	Normal operation				ECO mode				ECOnversion			
Voltage (V)	380	400	415	480	380	400	415	480	380	400	415	480
25% load	96.5%	96.6%	96.6%	96.5%	98.8%	98.8%	98.8%	98.8%	98.4%	98.4%	98.4%	98.1%
50% load	96.9%	97.1%	97.1%	97.2%	99.1%	99.1%	99.2%	99.2%	99.1%	99.1%	99.0%	99.0%
75% load	96.9%	97.1%	97.2%	97.4%	99.3%	99.3%	99.3%	99.3%	99.2%	99.3%	99.3%	99.2%
100% load	96.6%	96.8%	96.9%	97.3%	99.3%	99.3%	99.4%	99.4%	99.3%	99.3%	99.3%	99.4%

208 V System

10 kW

UPS rating	Normal operation			ECO mode			ECOnversion		
Voltage (V)	200	208	220	200	208	220	200	208	220
25% load	90.4%	90.6%	90.9%	93.8%	93.6%	93.9%	92.8%	93.3%	93.0%
50% load	93.3%	93.5%	93.6%	96.5%	96.4%	96.5%	96.0%	96.3%	96.2%
75% load	94.3%	94.4%	94.7%	97.4%	97.3%	97.4%	97.1%	97.3%	97.3%
100% load	94.6%	94.8%	95.1%	97.8%	97.8%	97.9%	97.6%	97.9%	97.9%

15 kW

UPS rating	Normal operation			ECO mode			ECOnversion		
Voltage (V)	200	208	220	200	208	220	200	208	220
25% load	92.3%	92.5%	92.7%	95.5%	95.4%	95.7%	95.0%	95.3%	95.0%
50% load	94.3%	94.4%	94.7%	97.4%	97.3%	97.4%	97.1%	97.3%	97.3%
75% load	94.6%	94.9%	95.1%	98.0%	98.0%	98.0%	97.8%	98.1%	98.1%
100% load	94.5%	94.8%	95.2%	98.3%	98.3%	98.3%	98.2%	98.4%	98.4%

20 kW

UPS rating	Normal operation			ECO mode			ECOnversion		
Voltage (V)	200	208	220	200	208	220	200	208	220
25% load	93.3%	93.5%	93.6%	96.5%	96.4%	96.5%	96.0%	96.3%	96.2%
50% load	94.6%	94.8%	95.1%	97.8%	97.8%	97.9%	97.6%	97.9%	97.9%
75% load	94.5%	94.8%	95.2%	98.3%	98.3%	98.3%	98.2%	98.4%	98.4%
100% load	94.1%	94.4%	94.9%	98.5%	98.5%	98.6%	98.5%	98.7%	98.7%

25 kW

UPS rating	Normal operation			ECO mode			ECOnversion		
Voltage (V)	**200**	**208**	**220**	**200**	**208**	**220**	**200**	**208**	**220**
25% load	93.9%	94.1%	94.3%	97.4%	97.3%	97.1%	96.6%	96.9%	96.9%
50% load	94.6%	94.9%	95.2%	98.1%	98.1%	98.2%	97.9%	98.2%	98.2%
75% load	94.3%	94.6%	95.0%	98.4%	98.5%	98.5%	98.4%	98.6%	98.6%
100% load	93.4%	93.9%	94.5%	98.6%	98.6%	98.7%	98.7%	98.8%	98.8%

30 kW

UPS rating	Normal operation			ECO mode			ECOnversion		
Voltage (V)	**200**	**208**	**220**	**200**	**208**	**220**	**200**	**208**	**220**
25% load	93.0%	93.1%	93.9%	96.6%	96.6%	96.7%	96.1%	96.1%	96.0%
50% load	94.6%	94.8%	95.4%	97.9%	97.9%	98.0%	97.8%	97.8%	97.8%
75% load	94.9%	95.0%	95.6%	98.3%	98.3%	98.4%	98.4%	98.4%	98.4%
100% load	94.7%	94.9%	95.6%	98.5%	98.5%	98.6%	98.6%	98.7%	98.7%

40 kW

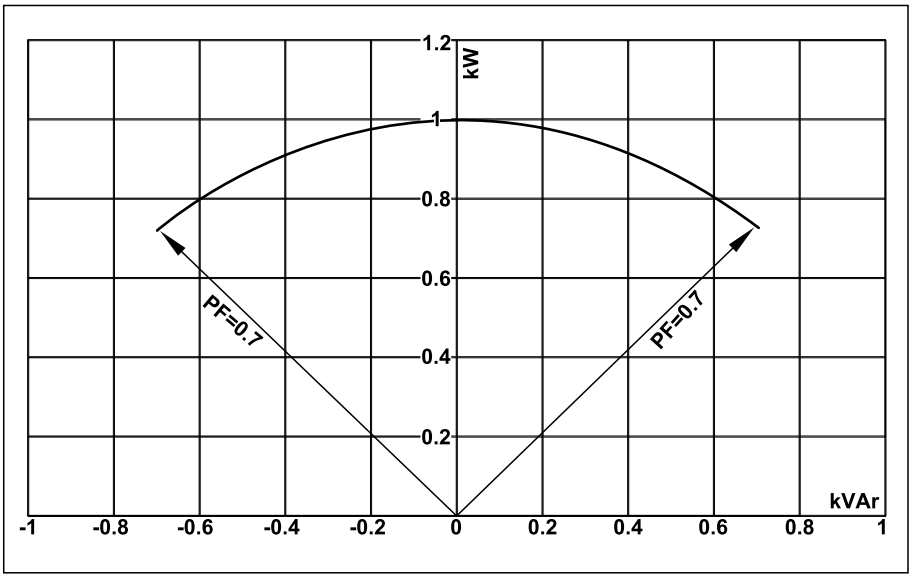
UPS rating	Normal operation			ECO mode			ECOnversion		
Voltage (V)	**200**	**208**	**220**	**200**	**208**	**220**	**200**	**208**	**220**
25% load	93.9%	94.1%	94.6%	97.2%	97.3%	97.3%	97.0%	97.0%	97.0%
50% load	94.9%	95.0%	95.6%	98.2%	98.2%	98.3%	98.2%	98.2%	98.3%
75% load	94.7%	94.9%	95.6%	98.5%	98.5%	98.6%	98.6%	98.7%	98.7%
100% load	94.2%	94.6%	95.3%	98.6%	98.7%	98.7%	98.7%	98.7%	98.8%

50 kW

UPS rating	Normal operation			ECO mode			ECOnversion		
Voltage (V)	**200**	**208**	**220**	**200**	**208**	**220**	**200**	**208**	**220**
25% load	94.4%	94.5%	95.1%	97.6%	97.6%	97.7%	97.5%	97.5%	97.4%
50% load	94.9%	95.0%	95.6%	98.4%	98.4%	98.5%	98.5%	98.5%	98.6%
75% load	94.4%	94.7%	95.4%	98.6%	98.7%	98.7%	98.7%	98.7%	98.7%
100% load	93.6%	94.0%	94.9%	98.7%	98.7%	98.8%	98.8%	98.8%	98.8%

Derating Due to Load Power Factor

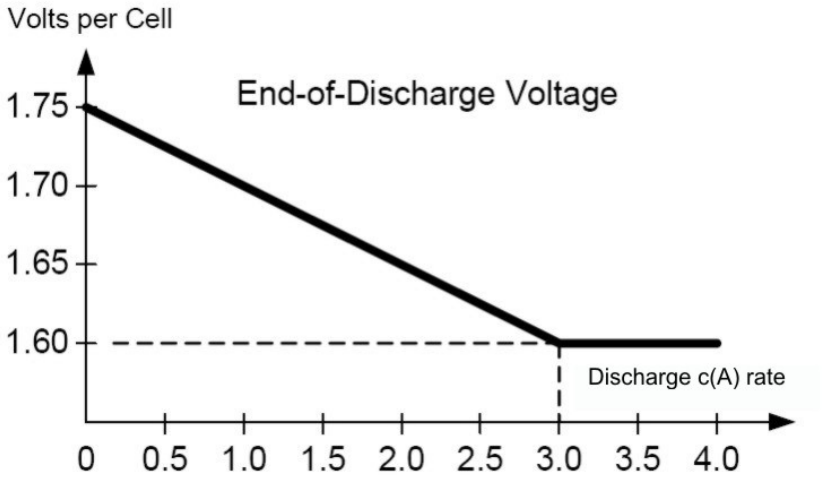
0.7 leading to 0.7 lagging without derating.



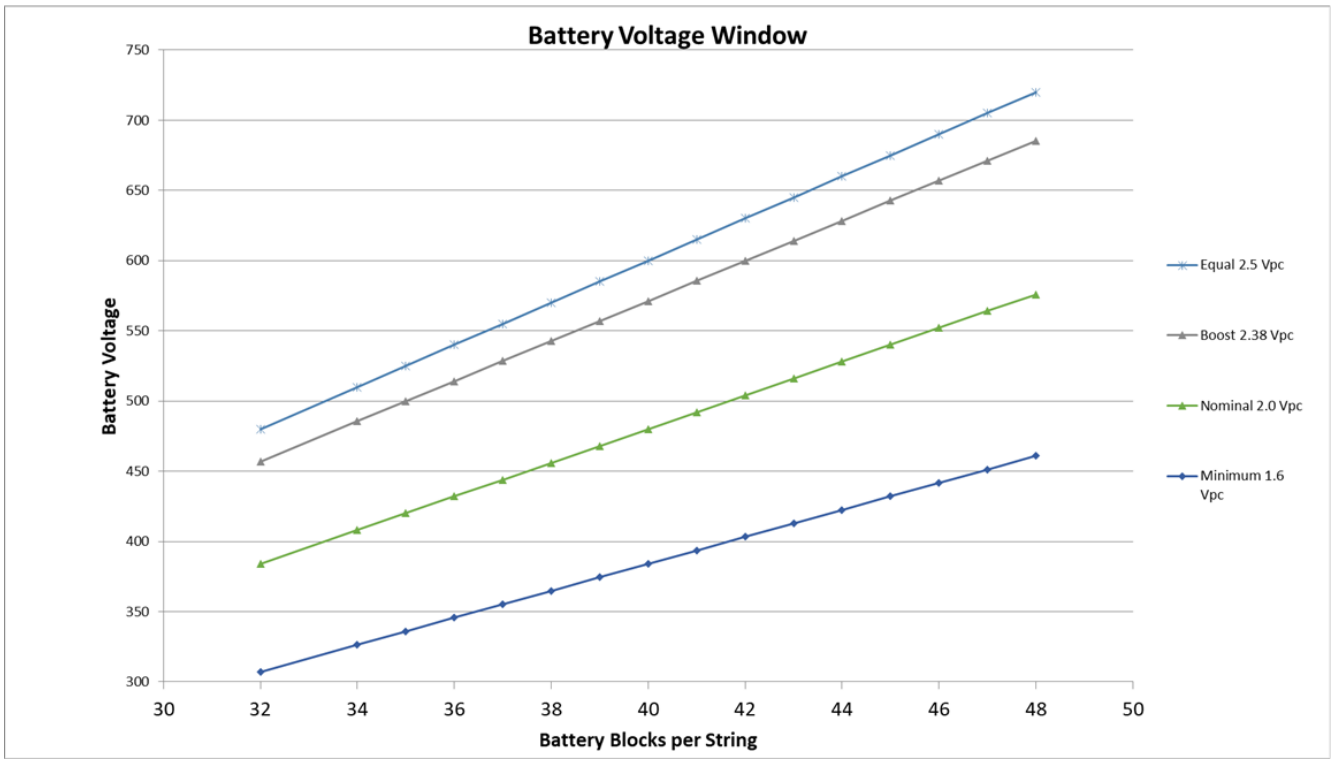
Batteries

End of Discharge Voltage

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



Battery Voltage Window



Compliance

Safety	IEC 62040-1: 2008-06, 1st edition Uninterruptible Power Systems (UPS) - Part 1: General and safety requirements for UPS IEC 62040-1: 2013-01, 1st edition amendment 1 UL 1778 5th edition
EMC/EMI/RFI	IEC 62040-2: 2005-10, 2nd edition Uninterruptible Power Systems (UPS) - Part 2: Electromagnetic compatibility (EMC) requirements C2 FCC Part 15 Subpart B, Class A IEEE C62.41-1991 Location Category B2, IEEE Recommended Practice on Surge Voltages in Low-Voltage AC Power Circuits
Transportation	IEC 60721-4-2 Level 2M2
Seismic	ICC-ES AC 156 (2015): Sds=1.45 g and Sds=2.00 g for z/h=1.0 Ip= 1.5 Base mounted – rigid

Performance

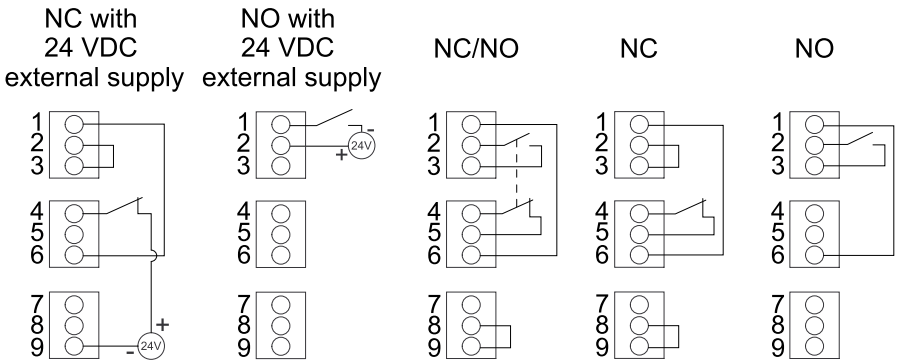
Performance in accordance with: IEC 62040-3: 2011-03, 2nd edition Uninterruptible Power Systems (UPS) - Part 3: Method of specifying the performance and test requirements.

Communication and Management

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

EPO

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



The EPO input supports 24 VDC.

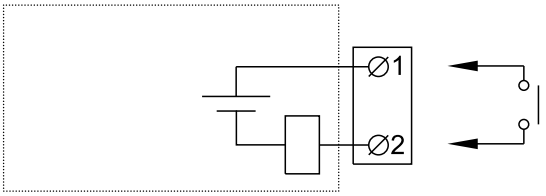
NOTE: The default setting for the EPO activation is to turn off the inverter.

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

Configurable Input Contacts and Output Relays

Input Contacts

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

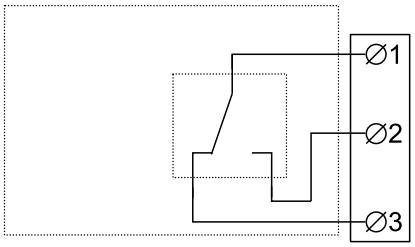


Name	Description	Location
IN _1 (input contact 1)	Configurable input contact	640-4864 terminal J6616, 1–2
IN _2 (input contact 2)	Configurable input contact	640-4864 terminal J6616, 3–4
IN _3 (input contact 3)	Configurable input contact	640-4864 terminal J6616, 5–6
IN _4 (input contact 4)	Configurable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

Output Relays

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

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



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

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

Requirements for a Third Party Battery Solution

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

Third Party Battery Breaker Requirements

⚠DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

All selected battery breakers must be equipped with instantaneous trip functionality with an undervoltage release coil or a shunt trip release coil.

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

Design Requirements for Battery Breaker

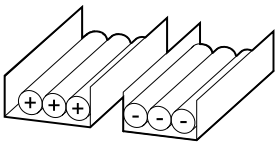
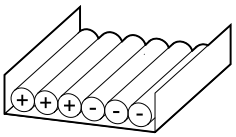
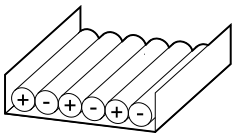
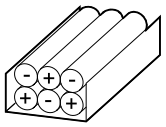
Battery breaker rated DC voltage > Normal battery voltage	The normal voltage of the battery configuration is defined as the highest nominal occurring battery voltage. This can be equivalent to the float voltage which may be defined as number of battery blocks x number of cells x cell float voltage. Ex: 32 blocks of 6 cells of 2.27 = 435 VDC.
Battery breaker rated DC current > Rated discharge battery current	This current is controlled by the UPS and must include maximum discharge current. This will typically be the current at the end of discharge (minimum operation DC voltage or in overload condition or a combination).
DC landings	Two DC landings for DC-cables are required.
AUX switches for monitoring	One AUX switch must be installed in each battery breaker and connected to the UPS. The UPS can monitor up to two battery breakers.
Short-circuit breaking capability	The short-circuit breaking capability must be higher than the short-circuit DC current of the (largest) battery configuration.
Minimum trip current	The minimum short-circuit current to trip the battery breaker must match the (smallest) battery configuration, to make the breaker trip in case of a short circuit, up to the end of its life time.

Guidance for Organizing Battery Cables

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

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

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

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

Specifications

Specifications for 400 V Systems

Input Specifications 400 V

	20 kW	30 kW	40 kW	50 kW	60 kW	80 kW	100 kW
Voltage (V)	**380/400/415**	**380/400/415**	**380/400/415**	**380/400/415**	**380/400/415**	**380/400/415**	**380/400/415**
Connections	4-wire (L1, L2, L3, N, PE) WYE (single mains) 3-wire (L1, L2, L3, PE) WYE (dual mains)[1] [2]						
Input voltage range (V)	380 V: 331–437 400 V: 340–460 415 V: 353–477						
Frequency range (Hz)	40–70						
Nominal input current (A)	32/30/29	47/45/43	63/60/58	79/75/72	95/90/87	126/120/116	158/150/144
Maximum input current (A)	38/36/35	57/54/52	76/72/69	91/90/87	114/108/104	151/144/139	182/180/173
Input current limitation (A)	39/37/36	59/56/54	78/74/72	91/91/90	117/111/107	156/148/143	182/182/179
Input power factor	0.99 at >25% load, 0.95 at >15% load						
Total harmonic distortion (THDI)	<5% at 100% load	<3% at 100% load					
Maximum short-circuit rating	65 kA RMS						
Protection	Built-in backfeed protection and fuses						
Ramp-in	Programmable and adaptive 1-40 seconds						

Bypass Specifications 400 V

	20 kW	30 kW	40 kW	50 kW	60 kW	80 kW	100 kW
Voltage (V)	**380/400/415**	**380/400/415**	**380/400/415**	**380/400/415**	**380/400/415**	**380/400/415**	**380/400/415**
Connections	4-wire (L1, L2, L3, N, PE) WYE						
Bypass voltage range (V)	380 V: 342–418 400 V: 360–440 415 V: 374–457						
Frequency range (Hz)	50/60 ± 1, 50/60 ± 3, 50/60 ± 10 (user selectable)						
Nominal bypass current (A)	31/29/28	46/44/42	61/58/56	77/73/70	92/87/84	123/117/112	153/146/141
Nominal neutral current (A)	53/50/48	79/75/72	105/100/96	131/125/120	158/150/144	210/200/193	263/250/241
Maximum short-circuit rating[3]	65 kA RMS						
Protection	Built-in backfeed protection and fuses Internal fuse specifications: Rated 400 A, prearcing 33 kA^2s						

1. TN and TT power distribution systems are supported. Corner (line) grounding is not supported.
2. **Only for dual mains system with upstream 4–pole breakers**: Install an N connection with the input cables (L1, L2, L3, N, PE). Refer to earthing schematics for TN-S dual mains 4-pole circuit breaker.
3. Conditioned by the internal fuse rated 400 A, prearcing 33 kA^2s.

Output Specifications 400 V

	20 kW	30 kW	40 kW	50 kW	60 kW	80 kW	100 kW
Voltage (V)	**380/400/415**	**380/400/415**	**380/400/415**	**380/400/415**	**380/400/415**	**380/400/415**	**380/400/415**
Connections	4-wire (L1, L2, L3, N, PE)						
Voltage regulation	Symmetrical load ± 1% Asymmetrical load ± 3%						
Overload capacity	150% for 1 minute (in normal operation) 125% for 10 minutes (in normal operation) 125% for 1 minute (in battery operation) 110% continuous (bypass operation) 1000% for 100 milliseconds (bypass operation)						
Dynamic load response	± 5% after 2 milliseconds ± 1% after 50 milliseconds						
Output power factor	1						
Nominal output current (A)	30/29/28	46/43/42	61/58/56	76/72/70	91/87/83	122/115/111	152/144/139
Frequency regulation (Hz)	50/60 Hz bypass synchronized – 50/60 Hz ± 0.1% free-running						
Synchronized slew rate (Hz/sec)	Programmable to 0.25, 0.5, 1, 2, 4, 6						
Total harmonic distortion (THDU)	<1% for linear load <5% for non-linear load						
Output performance classification (according to IEC/EN62040-3)	VFI-SS-111						
Load crest factor	2.5						
Load power factor	From 0.7 leading to 0.7 lagging without any derating						

Battery Specifications 400 V

⚠ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

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

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

	20 kW	**30 kW**	**40 kW**	**50 kW**	**60 kW**	**80 kW**	**100 kW**
Charging power in % of output power at 0–40% load	80%						
Charging power in % of output power at 100% load	20%						
Maximum charging power (at 0–40% load) (kW)	16	24	32	40	48	64	80
Maximum charging power (at 100% load) (kW)	4	6	8	10	12	16	20
Nominal battery voltage (VDC)	32–48 blocks: 384–576			40–48 blocks: 480–576	32–48 blocks: 384–576		40–48 blocks: 480–576
Nominal float voltage (VDC)	32–48 blocks: 436–654			40–48 blocks: 545–654	32–48 blocks: 436–654		40–48 blocks: 545–654
Maximum boost voltage (VDC)	720 for 48 blocks						
Temperature compensation	-3.3mV/°C/cell, for T ≥ 25 °C — 0mV/°C/cell, for T < 25 °C						
End of discharge voltage (full load) (VDC)	32 blocks: 307			40 blocks: 384	32 blocks: 307		40 blocks: 384
Battery current at full load and nominal battery voltage[4] (A)	54	81	109	109	130	174	217
Battery current at full load and minimum battery voltage[4] (A)	68	102	136	136	163	217	271
Ripple current	< 5% C20 (5 minute runtime)						
Battery test	Manual/automatic (selectable)						
Maximum short-circuit rating	10 kA						

4. Values based on 20-40 kW: 32 blocks; 50–100 kW: 40 blocks.

Recommended Cable Sizes 400 V

⚠ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

All wiring must comply with all applicable national and/or electrical codes. The maximum allowable cable size is 150 mm².

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

The maximum number of cable connections per busbar: 2 on input/output/bypass busbars; 4 on DC+/DC- busbars; 6 on N/PE busbars.

NOTE: Overcurrent protection is to be provided by others.

Cable sizes in this manual are based on table B.52.3 and table B.52.5 of IEC 60364–5–52 with the following assertions:

- 90 °C conductors
- An ambient temperature of 30 °C
- Use of copper or aluminum conductors
- Installation method C

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

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

NOTE: The DC cable sizes given here are recommendations — Always follow the specific instructions in the battery solution documentation for DC+/DC- and DC PE cable sizes.

Copper	**20 kW**	**30 kW**	**40 kW**	**50 kW**	**60 kW**	**80 kW**	**100 kW**
Input phases (mm²)	10	10	16	25	35	50	70
Input PE (mm²)	10	10	16	16	16	25	35
Bypass/output phases (mm²)	10	10	16	16	25	35	70
Bypass PE/output PE (mm²)	10	10	16	16	16	16	35
Neutral[5] (mm²)	10	16	35	50	70	95	2 x 50
DC+/DC- (mm²)	10[6]	25[6]	35[6]	35[7]	50[7]	70[7]	95[7]
DC PE (mm²)	10	16	16	16	25	35	50

Aluminum	**20 kW**	**30 kW**	**40 kW**	**50 kW**	**60 kW**	**80 kW**	**100 kW**
Input phases (mm²)	16	16	25	35	50	70	95
Input PE (mm²)	16	16	16	16	25	35	50
Bypass/output phases (mm²)	16	16	16	35	50	70	95
Bypass PE/output PE (mm²)	16	16	16	16	25	35	50
Neutral[5] (mm²)	16	35	50	70	95	2 x 70	2 x 95
DC+/DC- (mm²)	16[6]	35[6]	50[6]	50[7]	70[7]	95[7]	2 x 70[7]
DC PE (mm²)	16	16	25	25	35	50	70

5. Neutral conductor is sized to handle 1.73 times phase current in case of high harmonic content from non-linear loads. If non or less harmonic currents are expected, neutral conductor can be sized accordingly but not less than the phase conductor.
6. 20-40 kW: DC cables are sized according to 32 blocks.
7. 50–100 kW: DC cables are sized according to 40 blocks.

Recommended Upstream Protection 400 V

NOTE: For local directives which require 4-pole circuit breakers: If neutral conductor is expected to carry a high current, due to line-neutral non-linear load, the circuit breaker must be rated according to expected neutral current.

	20 kW		**30 kW**		**40 kW**	
	Input	**Bypass**	**Input**	**Bypass**	**Input**	**Bypass**
Breaker type	NSX100H TM40D		NSX100H TM63D	NSX100H TM50D	NSX100H TM80D	
In setting	40	40	63	50	80	80
Ir setting	40	32	63	50	80	63
Im setting	500 (fixed)	500 (fixed)	500 (fixed)	500 (fixed)	640 (fixed)	640 (fixed)

	50 kW		**60 kW**		**80 kW**	
	Input	**Bypass**	**Input**	**Bypass**	**Input**	**Bypass**
Breaker type	NSX100H TM100D		NSX160H TM125D		NSX160H TM160D	NSX160H TM125D
In setting	100	100	125	125	160	125
Ir setting	100	80	125	100	160	125
Im setting	800 (fixed)	800 (fixed)	1250 (fixed)	1250 (fixed)	1250 (fixed)	1250 (fixed)

	100 kW	
	Input	**Bypass**
Breaker type	NSX250H TM200D	
In setting	200	200
Ir setting	200	160
Im setting	1600	1600

Specifications for 480 V Systems

Input Specifications 480 V

	20 kW	30 kW	40 kW	50 kW	60 kW	80 kW	100 kW
Connections	3-wire (L1, L2, L3, PE) WYE[8]						
Input voltage range (V)	408–552						
Frequency range (Hz)	40-70						
Nominal input current (A)	25	37	50	62	74	99	124
Maximum input current (A)	30	45	60	74	89	119	149
Input current limitation (A)	31	47	62	77	93	124	154
Input power factor	0.99 at >25% load, 0.95 at >15% load						
Total harmonic distortion (THDI)	<5% at 100% load			<3% at 100% load	<5% at 100% load		<3% at 100% load
Maximum short-circuit rating	65 kA RMS						
Protection	Built-in backfeed protection and fuses						
Ramp-in	Programmable and adaptive 1-40 seconds						

Bypass Specifications 480 V

	20 kW	30 kW	40 kW	50 kW	60 kW	80 kW	100 kW
Connections	4-wire (L1, L2, L3, N, PE) WYE 3-wire (L1, L2, L3, PE) WYE[8]						
Bypass voltage range (V)	432–528						
Frequency range (Hz)	50/60 ± 1, 50/60 ± 3, 50/60 ± 10 (user selectable)						
Nominal bypass current (A)	24	36	49	61	73	97	121
Nominal neutral current (A)	42	62	83	104	125	166	208
Maximum short-circuit rating[9]	65 kA RMS						
Protection	Built-in backfeed protection and fuses Internal fuse specifications: Rated 400 A, prearcing 33 kA^2s						

8. TN and TT power distribution systems are supported. Corner (line) grounding is not supported.
9. Conditioned by the internal fuse rated 400 A, prearcing 33 kA^2s.

Output Specifications 480 V

	20 kW	30 kW	40 kW	50 kW	60 kW	80 kW	100 kW
Connections	4-wire (L1, L2, L3, N, PE) 3-wire (L1, L2, L3, PE)						
Voltage regulation	Symmetrical load ± 1% Asymmetrical load ± 3%						
Overload capacity	150% for 1 minute (in normal operation) 125% for 10 minutes (in normal operation) 125% for 1 minute (in battery operation) 125% continuous (bypass operation) 1000% for 100 milliseconds (bypass operation)						
Dynamic load response	± 5% after 2 milliseconds ± 1% after 50 milliseconds						
Output power factor	1						
Nominal output current (A)	24	36	48	60	72	96	120
Frequency regulation (Hz)	50/60 Hz bypass synchronized – 50/60 Hz ± 0.1% free-running						
Synchronized slew rate (Hz/sec)	Programmable to 0.25, 0.5, 1, 2, 4, 6						
Total harmonic distortion (THDU)	<1% for linear load <5% for non-linear load						
Output performance classification (according to IEC/EN62040-3)	VFI-SS-111						
Load crest factor	2.5						
Load power factor	From 0.7 leading to 0.7 lagging without any derating						

Battery Specifications 480 V

⚠DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

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

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

	20 kW	**30 kW**	**40 kW**	**50 kW**	**60 kW**	**80 kW**	**100 kW**
Charging power in % of output power at 0–40% load	80%						
Charging power in % of output power at 100% load	20%						
Maximum charging power (at 0–40% load) (kW)	16	24	32	40	48	64	80
Maximum charging power (at 100% load) (kW)	4	6	8	10	12	16	20
Nominal battery voltage range (VDC)	32–48 blocks: 384–576			40–48 blocks: 480–576	32–48 blocks: 384–576		40–48 blocks: 480–576
Nominal float voltage (VDC)	32–48 blocks: 436–654			40–48 blocks: 545–654	32–48 blocks: 436–654		40–48 blocks: 545–654
Maximum boost voltage (VDC)	720 for 48 blocks						
Temperature compensation	-3.3mV/°C/cell, for T ≥ 25 °C — 0mV/°C/cell, for T < 25 °C						
End of discharge voltage (full load) (VDC)	32 blocks: 307			40 blocks: 384	32 blocks: 307		40 blocks: 384
Battery current at full load and nominal battery voltage[10] (A)	54	81	108	108	130	173	216
Battery current at full load and minimum battery voltage[10] (A)	68	101	135	135	162	216	270
Ripple current	< 5% C20 (5 minute runtime)						
Battery test	Manual/automatic (selectable)						
Maximum short-circuit rating	10 kA						

10. Values based on 20-40 kW: 32 blocks; 50–100 kW: 40 blocks.

Recommended Cable Sizes 480 V

⚠ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

All wiring must comply with all applicable national and/or electrical codes. The maximum allowable cable size is 300 kcmil.

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

The maximum number of cable connections per busbar: 2 on input/output/bypass busbars; 4 on DC+/DC- busbars; 6 on N/PE busbars.

NOTE: Overcurrent protection is to be provided by others.

Cable sizes in this manual are based on Table 310.15 (B)(16) of the National Electrical Code (NEC) with the following assertions:

- 90 °C (194 °F) conductors (75 °C (167 °F) termination)
- An ambient temperature of 30 °C (86 °F)
- Use of copper or aluminum conductors
- Installation method C

If the ambient temperature is greater than 30 °C (86 °F), larger conductors are to be selected in accordance with the correction factors of the NEC.

Equipment grounding conductors (PE in this manual) are sized in accordance with NEC Article 250.122 and Table 250.122.

NOTE: The DC cable sizes given here are recommendations — Always follow the specific instructions in the battery solution documentation for DC+/DC- and DC PE cable sizes.

Copper	**20 kW**	**30 kW**	**40 kW**	**50 kW**	**60 kW**	**80 kW**	**100 kW**
Input phases (AWG/kcmil)	8	6	4	3	1	2/0	3/0
Input PE (AWG/kcmil)	10	8	8	6	6	6	4
Bypass/output phases (AWG/kcmil)	10	8	6	4	3	1	2/0
Bypass PE/output PE (AWG/kcmil)	10	10	8	8	8	6	6
Neutral[11] (AWG/kcmil)	6	4	2	1/0	2/0	4/0	2 x 1/0
DC+/DC-(AWG/kcmil)	4[12]	2[12]	1/0[12]	1/0[13]	2/0[13]	4/0[13]	2 x 1/0[13]
DC PE (AWG/kcmil)	8	6	6	6	6	4	4

Aluminum	**20 kW**	**30 kW**	**40 kW**	**50 kW**	**60 kW**	**80 kW**	**100 kW**
Input phases (AWG/kcmil)	6	4	2	1	1/0	3/0	250
Input PE (AWG/kcmil)	6	6	6	4	4	4	2
Bypass/output phases (AWG/kcmil)	6	6	4	2	1	2/0	3/0
Bypass PE/output PE (AWG/kcmil)	6	6	6	6	6	4	4
Neutral[11] (AWG/kcmil)	4	2	1/0	2/0	4/0	2 x 1/0	2 x 2/0

11. Neutral conductor is sized to handle 1.73 times phase current in case of high harmonic content from non-linear loads. If non or less harmonic currents are expected, neutral conductor can be sized accordingly but not less than the phase conductor.
12. 20-40 kW: DC cables are sized according to 32 blocks.
13. Above 40 kW: DC cables are sized according to 40 blocks.

Aluminum	20 kW	30 kW	40 kW	50 kW	60 kW	80 kW	100 kW
DC+/DC-(AWG/kcmil)	3[14]	1/0[14]	2/0[14]	2/0[15]	4/0[15]	2 x 1/0[15]	2 x 3/0[15]
DC PE (AWG/kcmil)[16]	6	4	4	4	4	2	2

NOTE: 80% rated circuit breakers for UIB, UOB, MBB, SSIB.

Recommended Upstream Protection 480 V

⚠CAUTION

HAZARD OF FIRE

- Connect only to a circuit with the below specifications.
- Connect only to a circuit provided with a 250 A branch circuit overcurrent protection maximum 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 and marked with its function.

	20 kW		30 kW		40 kW		50 kW	
	Input	Bypass	Input	Bypass	Input	Bypass	Input	Bypass
Breaker	HJF36100CU31X							
Ir setting	40	35	60	50	80	70	100	80
Tr at 6 Ir setting	0.5							
Ii (x In) setting	1.5							

	60 kW		80 kW		100 kW	
	Input	Bypass	Input	Bypass	Input	Bypass
Breaker	HJF36150CU31X	HJF36100CU31X	JJF36250CU31X	HJF36150CU31X	JJF36250CU31X	
Ir setting	125	100	175	125	200	175
Tr at 6 Ir setting	0.5					
Ii (x In) setting	1.5					

14. 20-40 kW: DC cables are sized according to 32 blocks.
15. Above 40 kW: DC cables are sized according to 40 blocks.
16. For PE used in parallel conduits, PE must be full sized in order to prevent overload or burnout of cables.

Specifications for 208 V Systems

Input Specifications 208 V

	10 kW	15 kW	20 kW	25 kW	30 kW	40 kW	50 kW
Voltage (V)	**200/208/220**	**200/208/220**	**200/208/220**	**200/208/220**	**200/208/220**	**200/208/220**	**200/208/220**
Connections	4-wire (L1, L2, L3, N, PE) WYE (single mains) 3-wire (L1, L2, L3, PE) WYE (dual mains)						
Input voltage range (V)	200 V: 170-230 208 V: 177-239 220 V: 187-253						
Frequency range (Hz)	40–70						
Nominal input current (A)	31/30/28	47/45/42	62/60/56	78/75/71	93/90/85	124/119/113	155/149/141
Maximum input current (A)	37/36/34	56/54/51	74/72/68	91/90/85	112/107/102	149/143/135	182/179/169
Input current limitation (A)	39/37/35	58/55/52	77/74/70	91/91/87	115/110/104	153/147/139	182/182/174
Input power factor	0.99 at >25% load, 0.95 at >15% load						
Total harmonic distortion (THDI)	<5% at 100% load	<3% at 100% load					
Maximum short-circuit rating	65 kA RMS						
Protection	Built-in backfeed protection and fuses						
Ramp-in	Programmable and adaptive 1-40 seconds						

Bypass Specifications 208 V

	10 kW	15 kW	20 kW	25 kW	30 kW	40 kW	50 kW
Voltage (V)	**200/208/220**	**200/208/220**	**200/208/220**	**200/208/220**	**200/208/220**	**200/208/220**	**200/208/220**
Connections	4-wire (L1, L2, L3, N, PE) WYE						
Bypass voltage range(V)	200 V: 180–220 208 V: 187–229 220 V: 198–242						
Frequency range (Hz)	50/60 ± 1, 50/60 ± 3, 50/60 ± 10 (user selectable)						
Nominal bypass current (A)	29/28/27	44/42/40	58/56/53	73/70/66	87/84/80	117/112/106	146/140/133
Nominal neutral current (A)	50/48/45	75/72/68	100/96/91	125/120/114	150/144/136	200/192/182	250/240/227
Maximum short-circuit rating[17]	65 kA RMS						
Protection	Built-in backfeed protection and fuses Internal fuse specifications: Rated 400 A, prearcing 33 kA^2s						

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

Output Specifications 208 V

	10 kW	15 kW	20 kW	25 kW	30 kW	40 kW	50 kW
Voltage (V)	**200/208/220**	**200/208/220**	**200/208/220**	**200/208/220**	**200/208/220**	**200/208/220**	**200/208/220**
Connections	4-wire (L1, L2, L3, N, PE)						
Voltage regulation	Symmetrical load ± 1% Asymmetrical load ± 3%						
Overload capacity	150% for 1 minute (in normal operation) 125% for 10 minutes (in normal operation) 125% for 1 minute (in battery operation) 125% continuous (bypass operation) 1000% for 100 milliseconds (bypass operation)						
Dynamic load response	± 5% after 2 milliseconds ± 1% after 50 milliseconds						
Output power factor	1						
Nominal output current (A)	29/28/26	43/42/39	58/56/52	73/70/66	87/83/79	115/111/105	144/139/131
Frequency regulation (Hz)	50/60 Hz bypass synchronized – 50/60 Hz ± 0.1% free-running						
Synchronized slew rate (Hz/sec)	Programmable to 0.25, 0.5, 1, 2, 4, 6						
Total harmonic distortion (THDU)	<2%						
Load crest factor	2.5						
Load power factor	From 0.7 leading to 0.7 lagging without any derating						

Battery Specifications 208 V

⚠ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

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

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

	10 kW	15 kW	20 kW	25 kW	30 kW	40 kW	50 kW
Charging power in % of output power at 0–40% load	80%						
Charging power in % of output power at 100% load	20%						
Maximum charging power (at 0–40% load) (kW)	8	12	16	20	24	32	40
Maximum charging power (at 100% load) (kW)	2	3	4	5	6	8	10
Nominal battery voltage (VDC)	32-40 blocks: 384-480						
Nominal float voltage (VDC)	32-40 blocks: 436–545						
Maximum boost voltage (VDC)	600 for 40 blocks						
Temperature compensation	-3.3mV/°C/cell, for T ≥ 25 °C — 0mV/°C/cell, for T < 25 °C						
End of discharge voltage (VDC)	32 blocks: 307						
Battery current at full load and nominal Vbat[18] (V)	27	41	55	68	82	109	136
Battery current at full load and minimum Vbat[18] (V)	34	51	68	85	102	136	170
Ripple current	< 5% C20 (5 minute runtime)						
Battery test	Manual/automatic (selectable)						
Maximum short-circuit rating	10 kA						

18. Values based on 10-50 kW: 32 blocks.

Recommended Cable Sizes 208 V

⚠ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

All wiring must comply with all applicable national and/or electrical codes. The maximum allowable cable size is 300 kcmil.

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

The maximum number of cable connections per busbar: 2 on input/output/bypass busbars; 4 on DC+/DC- busbars; 6 on N/PE busbars.

NOTE: Overcurrent protection is to be provided by others.

Cable sizes in this manual are based on Table 310.15 (B)(16) of the National Electrical Code (NEC) with the following assertions:

- 90 °C (194 °F) conductors (75 °C (167 °F) termination)
- An ambient temperature of 30 °C (86 °F)
- Use of copper or aluminum conductors
- Installation method C

If the ambient temperature is greater than 30 °C (86 °F), larger conductors are to be selected in accordance with the correction factors of the NEC.

Equipment grounding conductors (PE in this manual) are sized in accordance with NEC Article 250.122 and Table 250.122.

NOTE: The DC cable sizes given here are recommendations — Always follow the specific instructions in the battery solution documentation for DC+/DC- and DC PE cable sizes.

Copper	**10 kW**	**15 kW**	**20 kW**	**25 kW**	**30 kW**	**40 kW**	**50 kW**
Input phases (AWG/kcmil)	8	4	3	2	1/0	3/0	4/0
Input PE (AWG/kcmil)	10	8	8	6	6	6	4
Bypass/output phases (AWG/kcmil)	8	6	4	3	2	1/0	3/0
Bypass PE/output PE (AWG/kcmil)	10	10	8	8	6	6	6
Neutral[19] (AWG/kcmil)	6	3	1	2/0	3/0	2 x 1/0	2 x 2/0
DC+/DC-(AWG/kcmil)	10	6	4	4	2	1/0	2/0
DC PE (AWG/kcmil)	10	10	8	8	6	6	6

Aluminum	**10 kW**	**15 kW**	**20 kW**	**25 kW**	**30 kW**	**40 kW**	**50 kW**
Input phases (AWG/kcmil)	6	3	1	1/0	3/0	250	300
Input PE (AWG/kcmil)	6	6	6	4	4	4	2
Bypass/output phases (AWG/kcmil)	6	4	3	1	1/0	3/0	250
Bypass PE/output PE (AWG/kcmil)	6	6	6	6	4	4	4
Neutral[19] (AWG/kcmil)	4	1	2/0	4/0	2 x 1/0	2 x 2/0	2 x 4/0

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

Aluminum	10 kW	15 kW	20 kW	25 kW	30 kW	40 kW	50 kW
DC+/DC- (AWG/kcmil)	8	4	3	2	1/0	3/0	4/0
DC PE (AWG/kcmil)[20]	6	6	6	6	4	4	4

NOTE: 80% rated circuit breakers for UIB, UOB, MBB, SSIB.

Recommended Upstream Protection 208 V

⚠CAUTION

HAZARD OF FIRE

- Connect only to a circuit with the below specifications.
- Connect only to a circuit provided with a 250 A branch circuit overcurrent protection maximum 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 and marked with its function.

Rating	10 kW		15 kW		20 kW		25 kW	
	Input	Bypass	Input	Bypass	Input	Bypass	Input	Bypass
Breaker	HJF36100CU31X						HJF36150-CU31X	HJF36100-CU31X
Ir setting	50	40	80	60	100	80	125	100
tr at 6 Ir setting	0.5							
Ii (x In) setting	1.5							

Rating	30 kW		40 kW		50 kW	
	Input	Bypass	Input	Bypass	Input	Bypass
Breaker	HJF36150CU31X		JJF36250CU31-X	HJF36150C-U31X	JJF36250CU31X	
Ir setting	150	110	200	150	250	200
tr at 6 Ir setting	0.5					
Ii (x In) setting	1.5					

20. For PE used in parallel conduits, PE must be full sized in order to prevent overload or burnout of cables.

Torque Specifications

Bolt size	Torque
M4	1.7 Nm (1.25 lb-ft)
M6	5 Nm (3.69 lb-ft)
M8	17.5 Nm (12.91 lb-ft)
M10	30 Nm (22 lb-ft)

Physical

UPS Shipping Weights and Dimensions

UPS rating	Weight kg (lbs)	Height mm (in)	Width mm (in)	Depth mm (in)
10–50 kW UPS 400 V	235 (518.09)	1680 (66.14)	640 (25.2)	990 (38.98)
10–50 kW UPS 480 V	235 (518.09)	1680 (66.14)	640 (25.2)	990 (38.98)
10–25 kW UPS 208 V	235 (518.09)	1680 (66.14)	640 (25.2)	990 (38.98)
60–100 kW UPS 400 V	275 (606.27)	1680 (66.14)	640 (25.2)	990 (38.98)
60–100 kW UPS 480 V	275 (606.27)	1680 (66.14)	640 (25.2)	990 (38.98)
30–50 kW UPS 208 V	275 (606.27)	1680 (66.14)	640 (25.2)	990 (38.98)

UPS Weights and Dimensions

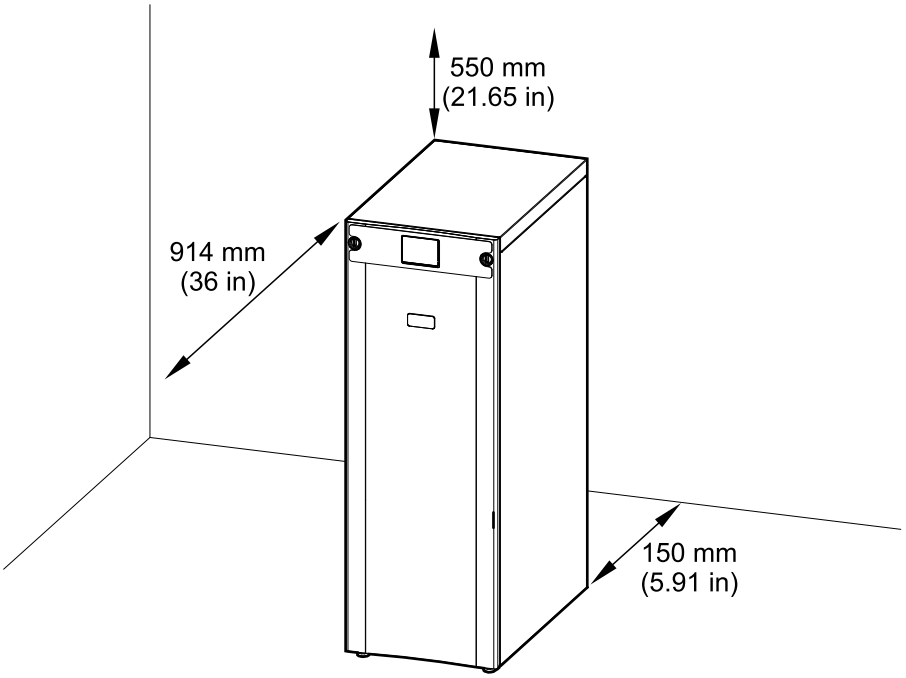
UPS rating	Weight kg (lbs)	Height mm (in)	Width mm (in)	Depth mm (in)
10–50 kW UPS 400 V	210 (462.97)	1485 (58.46)	521 (20.51)	847 (33.35)
10–50 kW UPS 480 V	210 (462.97)	1485 (58.46)	521 (20.51)	847 (33.35)
10–25 kW UPS 208 V	210 (462.97)	1485 (58.46)	521 (20.51)	847 (33.35)
60–100 kW UPS 400 V	250 (551.16)	1485 (58.46)	521 (20.51)	847 (33.35)
60–100 kW UPS 480 V	250 (551.16)	1485 (58.46)	521 (20.51)	847 (33.35)
30–50 kW UPS 208 V	250 (551.16)	1485 (58.46)	521 (20.51)	847 (33.35)

Clearance

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

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

Front View of the UPS



Weights and Dimensions for Auxiliary Products Available in IEC Region

Maintenance Bypass Panel Shipping Weights and Dimensions

Commercial reference	Weight kg	Height mm	Width mm	Depth mm
GVSBPSU20K60H	40	1200	800	480
GVSBPSU80K100H	60	1200	800	540

Maintenance Bypass Panel Weights and Dimensions

Commercial reference	Weight kg	Height mm	Width mm	Depth mm
GVSBPSU20K60H	25	600	550	220
GVSBPSU80K100H	40	800	600	280

Classic Battery Cabinet Shipping Weights and Dimensions

Commercial reference	Weight kg	Height mm	Width mm	Depth mm
GVSCBC7A	600	2025	825	970
GVSCBC7B	768	2025	825	970
GVSCBC7C	940	2025	825	970
GVSCBC10A	1310	2025	1125	970
GVSCBC10B	1542	2025	1125	970

Classic Battery Cabinet Weights and Dimensions

Commercial reference	Weight kg	Height mm	Width mm	Depth mm
GVSCBC7A	580	1970	700	830
GVSCBC7B	748	1970	700	830
GVSCBC7C	920	1970	700	830
GVSCBC10A	1280	1970	1000	830
GVSCBC10B	1512	1970	1000	830

Battery Breaker Box Shipping Weights and Dimensions

Commercial reference	Weight kg	Height mm	Width mm	Depth mm
GVSBBB20K80H	45	530	1220	840
GVSBBB100K200H	55	530	1220	840

Battery Breaker Box Weights and Dimensions

Commercial reference	Weight kg	Height mm	Width mm	Depth mm
GVSBBB20K80H	25	650	500	280
GVSBBB100K200H	35	800	500	280

Empty Battery Cabinet Shipping Weight and Dimensions

	Weight kg	Height mm	Width mm	Depth mm
Empty battery cabinet	205	2100	930	970

Empty Battery Cabinet Weight and Dimensions

	Weight kg	Height mm	Width mm	Depth mm
Empty battery cabinet	190	1970	700	850

Weights and Dimensions for Auxiliary Products Available in UL Region

Maintenance Bypass Cabinet Shipping Weights and Dimensions

Commercial reference	Weight kg (lbs)	Height mm (in)	Width mm (in)	Depth mm (in)
GVSBPSU80G	125 (275.58)	1660 (65.35)	635 (25)	990 (38.98)
GVSBPSU150G	135 (297.62)	1660 (65.35)	635 (25)	990 (38.98)

Maintenance Bypass Cabinet Weights and Dimensions

Commercial reference	Weight kg (lbs)	Height mm (in)	Width mm (in)	Depth mm (in)
GVSBPSU80G	110 (242.51)	1485 (58.46)	318 (12.52)	850 (33.46)
GVSBPSU150G	120 (264.55)	1485 (58.46)	318 (12.52)	850 (33.46)

Maintenance Bypass Cabinet with Transformer Shipping Weights and Dimensions

Commercial reference	Weight kg (lbs)	Height mm (in)	Width mm (in)	Depth mm (in)
GVSBPIT25	425 (936.97)	1670 (65.75)	800 (31.5)	990 (39.98)
GVSBPIT50	560 (1234.59)	1670 (65.75)	800 (31.5)	990 (39.98)
GVSBPOT50	560 (1234.59)	1670 (65.75)	800 (31.5)	990 (39.98)
GVSBPOT100	675 (1488.12)	1670 (65.75)	800 (31.5)	990 (39.98)

Maintenance Bypass Cabinet with Transformer Weights and Dimensions

Commercial reference	Weight kg (lbs)	Height mm (in)	Width mm (in)	Depth mm (in)
GVSBPIT25	395 (870.83)	1485 (58.46)	600 (23.62)	836 (32.91)
GVSBPIT50	530 (1168.45)	1485 (58.46)	600 (23.62)	836 (32.91)
GVSBPOT50	530 (1168.45)	1485 (58.46)	600 (23.62)	836 (32.91)
GVSBPOT100	645 (1421.98)	1485 (58.46)	600 (23.62)	836 (32.91)

Classic Battery Cabinet Shipping Weights and Dimensions

Commercial reference	Weight kg (lbs)	Height mm (in)	Width mm (in)	Depth mm (in)
GVSCBT1	619 (1364.66)	1688 (66.46)	1372 (54.02)	998 (39.29)
GVSCBT1ST	662 (1459.46)	1688 (66.46)	1372 (54.02)	998 (39.29)
GVSCBT2	708 (1560.87)	1688 (66.46)	1372 (54.02)	998 (39.29)
GVSCBT2ST	751 (1655.67)	1688 (66.46)	1372 (54.02)	998 (39.29)
GVSCBT3	1009 (2224.47)	1688 (66.46)	1372 (54.02)	998 (39.29)
GVSCBT3ST	1053 (2321.47)	1688 (66.46)	1372 (54.02)	998 (39.29)
GVSCBT4	1370 (3020.34)	1688 (66.46)	1372 (54.02)	998 (39.29)
GVSCBT4ST	1422 (3134.98)	1688 (66.46)	1372 (54.02)	998 (39.29)
GVSCBT5	1569 (3459.06)	1688 (66.46)	1372 (54.02)	998 (39.29)
GVSCBT5ST	1622 (3575.90)	1688 (66.46)	1372 (54.02)	998 (39.29)

Classic Battery Cabinet Weights and Dimensions

Commercial reference	Weight kg (lbs)	Height mm (in)	Width mm (in)	Depth mm (in)
GVSCBT1	573 (1263.25)	1485 (58.46)	700 (27.56)	840 (33.07)
GVSCBT1ST	617 (1360.25)	1485 (58.46)	700 (27.56)	840 (33.07)
GVSCBT2	662 (1459.46)	1485 (58.46)	700 (27.56)	840 (33.07)
GVSCBT2ST	706 (1556.46)	1485 (58.46)	700 (27.56)	840 (33.07)
GVSCBT3	964 (2125.26)	1485 (58.46)	700 (27.56)	840 (33.07)
GVSCBT3ST	1007 (2220.06)	1485 (58.46)	700 (27.56)	840 (33.07)
GVSCBT4	1324 (2918.92)	1485 (58.46)	1000 (39.37)	840 (33.07)
GVSCBT4ST	1377 (3035.77)	1485 (58.46)	1000 (39.37)	840 (33.07)
GVSCBT5	1524 (3359.85)	1485 (58.46)	1000 (39.37)	840 (33.07)
GVSCBT5ST	1576 (3474.49)	1485 (58.46)	1000 (39.37)	840 (33.07)

Environment

	Operating	Storage
Temperature	0 °C to 40 °C (32 °F to 104 °F) without load derating. **For UL only**: 0 °C to 50 °C (32 °F to 122 °F) with load derating above 40 °C (104 °F).[21]	-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	0 – 95% non-condensing	10 – 80% non-condensing
Elevation	Designed for operation in 0–3000 m (0–10000 feet) elevation. Derating required from 1000–3000 m (3300–10000 feet): Up to 1000 m (3300 feet): 1.000 Up to 1500 m (5000 feet): 0.975 Up to 2000 m (6600 feet): 0.950 Up to 2500 m (8300 feet): 0.925 Up to 3000 m (10000 feet): 0.900	
Audible noise one meter (three feet) from unit[22]	400 V: 57 dB at 70% load, 65 dB at 100% load 480 V: 54 dB at 70% load, 61 dB at 100% load 208 V: 57 dB at 70% load, 65 dB at 100% load	
Protection class	IP21	
Color	RAL 9003, gloss level 85%	

Heat Dissipation

400 V and 480 V Systems

20 kW

UPS rating	Normal operation				ECO mode				ECOnversion			
Voltage (V)	**380**	**400**	**415**	**480**	**380**	**400**	**415**	**480**	**380**	**400**	**415**	**480**
25% load in BTU/hr	1137.6	1050.6	1063.2	1169.0	551.1	564.7	572.6	566.8	776.9	900.5	835.3	912.7
50% load in BTU/hr	1498.3	1437.5	1446.1	1522.2	640.8	628.5	640.8	619.3	819.3	872.5	850.6	964.6
75% load in BTU/hr	1925.5	1804.0	1813.2	1862.3	729.9	697.1	706.0	680.4	846.9	897.1	886.8	981.3
100% load in BTU/hr	2320.9	2201.2	2208.0	2187.9	790.6	778.7	776.3	741.1	898.8	926.4	927.8	1034.6

30 kW

UPS rating	Normal operation				ECO mode				ECOnversion			
Voltage (V)	**380**	**400**	**415**	**480**	**380**	**400**	**415**	**480**	**380**	**400**	**415**	**480**
25% load in BTU/hr	1315.4	1248.5	1257.4	1352.6	608.0	591.0	600.2	589.3	791.3	867.7	835.0	919.2
50% load in BTU/hr	1925.5	1804.0	1813.2	1862.3	729.9	697.1	706.0	680.4	846.9	897.1	886.8	981.3
75% load in BTU/hr	2529.1	2464.2	2419.2	2389.2	825.7	808.7	809.0	945.5	925.7	938.7	944.8	1024.0
100% load in BTU/hr	3356.5	3369.8	3192.4	2922.5	951.6	925.4	939.0	883.1	1006.2	1038.3	1026.0	1088.1

21. For temperatures between 40 °C and 50 °C, derate the load power rating with 2.5% per °C.
22. Values are for maximum configuration.

40 kW

UPS rating	Normal operation				ECO mode				ECOnversion			
Voltage (V)	**380**	**400**	**415**	**480**	**380**	**400**	**415**	**480**	**380**	**400**	**415**	**480**
25% load in BTU/hr	1498.3	1437.5	1446.1	1522.2	640.8	628.5	640.8	619.3	819.3	872.5	851.7	964.6
50% load in BTU/hr	2320.9	2201.2	2208.0	2187.9	790.6	778.7	776.3	741.1	898.8	1267.6	927.8	1034.6
75% load in BTU/hr	3356.5	3369.8	3192.4	2922.5	951.6	925.4	939.0	883.1	1006.2	1038.3	1026.0	1088.1
100% load in BTU/hr	4577.0	5009.0	4284.6	3845.5	1120.2	1094.3	1086.1	1014.4	1122.9	1184.7	1143.7	1158.4

50 kW

UPS rating	Normal operation				ECO mode				ECOnversion			
Voltage (V)	**380**	**400**	**415**	**480**	**380**	**400**	**415**	**480**	**380**	**400**	**415**	**480**
25% load in BTU/hr	1725.9	1617.4	1618.7	1689.7	688.6	669.5	668.1	656.8	833.9	846.2	867.0	972.1
50% load in BTU/hr	2888.4	2594.6	2718.1	2530.1	888.5	843.1	845.2	813.8	951.6	965.0	970.4	1023.6
75% load in BTU/hr	4293.8	4408.1	4026.0	3584.1	1078.6	1058.8	1053.0	970.8	1087.8	1108.6	1113.0	1132.1
100% load in BTU/hr	6268.1	6973.7	5673.0	4915.2	1287.7	1247.1	1233.8	1136.9	1261.5	1252.6	1255.7	1184.0

60 kW

UPS rating	Normal operation				ECO mode				ECOnversion			
Voltage (V)	**380**	**400**	**415**	**480**	**380**	**400**	**415**	**480**	**380**	**400**	**415**	**480**
25% load in BTU/hr	2356.8	2265.3	2253.0	2447.2	913.8	917.5	901.1	931.9	1300.7	1351.5	1361.1	1573.7
50% load in BTU/hr	3560.9	3364.4	3366.4	3451.4	1162.9	1151.3	1105.9	1122.6	1414.3	1459.0	1448.1	1627.3
75% load in BTU/hr	4878.0	4608.1	4635.1	4461.4	1420.1	1400.7	1356.7	1327.7	1586.6	1566.5	1586.3	1774.3
100% load in BTU/hr	6544.8	6150.4	6044.6	5576.1	1701.6	1630.3	1605.1	1543.0	1767.8	1782.5	1762.7	1811.5

80 kW

UPS rating	Normal operation				ECO mode				ECOnversion			
Voltage (V)	**380**	**400**	**415**	**480**	**380**	**400**	**415**	**480**	**380**	**400**	**415**	**480**
25% load in BTU/hr	2710.9	2621.5	2626.3	2791.1	997.4	991.6	971.8	989.2	1327.7	1369.0	1382.3	1597.6
50% load in BTU/hr	4377.8	4177.5	4187.0	4092.9	1331.1	1303.4	1278.5	1260.8	1497.2	1509.2	1537.2	1664.1
75% load in BTU/hr	6544.8	6150.4	6044.6	5576.1	1701.6	1630.3	1605.1	1543.0	1767.8	1782.5	1762.7	1811.5
100% load in BTU/hr	8963.7	8393.9	8103.8	7449.0	1927.9	1859.6	1801.6	1846.7	1962.0	1951.7	1931.3	1964.4

100 kW

UPS rating	Normal operation				ECO mode				ECOnversion			
Voltage (V)	**380**	**400**	**415**	**480**	**380**	**400**	**415**	**480**	**380**	**400**	**415**	**480**
25% load in BTU/hr	3128.9	2959.0	2988.4	3113.6	1074.1	1063.6	1046.2	1054.7	1369.6	1402.4	1424.2	1606.8
50% load in BTU/hr	5437.9	5115.5	5089.6	4837.7	1517.4	1496.6	1435.8	1395.6	1635.1	1624.2	1668.5	1706.4

100 kW (Continued)

UPS rating	Normal operation				ECO mode				ECOnversion			
Voltage (V)	**380**	**400**	**415**	**480**	**380**	**400**	**415**	**480**	**380**	**400**	**415**	**480**
75% load in BTU/hr	8178.9	7626.1	7465.8	6944.4	1811.8	1760.7	1750.4	1768.9	1938.1	1921.0	1883.5	1998.5
100% load in BTU/hr	12003-.9	11372.-7	10751-.7	9499.4	1344.4	2269.1	2211.1	1958.6	2391.9	2265.7	2272.5	2211.1

208 V System

10 kW

UPS rating	Normal operation			ECO mode			ECOnversion		
Voltage (V)	**200**	**208**	**220**	**200**	**208**	**220**	**200**	**208**	**220**
25% load in BTU/hr	910.7	886.5	860.9	565.4	585.2	558.6	659.2	624.4	648.6
50% load in BTU/hr	1218.8	1196.6	1145.5	627.5	643.2	615.6	720.0	662.3	666.4
75% load in BTU/hr	1550.8	1511.2	1445.0	696.4	706.7	676.6	772.9	702.6	715.9
100% load in BTU/hr	1949.4	1891.0	1782.5	762.6	771.8	731.6	836.3	736.3	735.7

15 kW

UPS rating	Normal operation			ECO mode			ECOnversion		
Voltage (V)	**200**	**208**	**220**	**200**	**208**	**220**	**200**	**208**	**220**
25% load in BTU/hr	1066.3	1050.9	1007.6	602.6	611.8	587.9	685.5	640.8	675.3
50% load in BTU/hr	1550.8	1511.2	1445.0	696.4	706.7	676.6	772.9	702.6	715.9
75% load in BTU/hr	2189.9	2075.9	1963.7	797.4	795.7	767.7	859.2	752.7	752.4
100% load in BTU/hr	2956.6	2802.1	2627.7	905.9	902.5	862.9	938.7	820.6	821.3

20 kW

UPS rating	Normal operation			ECO mode			ECOnversion		
Voltage (V)	**200**	**208**	**220**	**200**	**208**	**220**	**200**	**208**	**220**
25% load in BTU/hr	1218.8	1196.6	1145.5	627.5	643.2	615.6	720.0	662.3	666.4
50% load in BTU/hr	1949.4	1891.0	1782.5	762.6	771.8	731.6	836.3	736.3	735.7
75% load in BTU/hr	2956.6	2802.1	2627.7	905.9	902.5	862.9	938.7	820.6	821.3
100% load in BTU/hr	4261.1	4018.8	3665.3	1057.8	1027.7	1002.5	1033.2	928.1	910.7

25 kW

UPS rating	Normal operation			ECO mode			ECOnversion		
Voltage (V)	**200**	**208**	**220**	**200**	**208**	**220**	**200**	**208**	**220**
25% load in BTU/hr	1378.5	1338.9	1285.4	660.6	672.9	643.5	741.5	674.9	694.4
50% load in BTU/hr	2418.2	2309.0	2155.8	831.5	835.3	800.1	888.5	774.2	786.5

25 kW (Continued)

UPS rating	Normal operation			ECO mode			ECOnversion		
Voltage (V)	**200**	**208**	**220**	**200**	**208**	**220**	**200**	**208**	**220**
75% load in BTU/hr	3892.6	3683.1	3376.7	1021.3	985.8	966.7	1015.5	906.3	891.6
100% load in BTU/hr	6028.2	5526.0	4976.9	1215.1	1179.2	1143.4	1146.1	1042.1	1015.5

30 kW

UPS rating	Normal operation			ECO mode			ECOnversion		
Voltage (V)	**200**	**208**	**220**	**200**	**208**	**220**	**200**	**208**	**220**
25% load in BTU/hr	1928.9	1907.4	1677.4	903.9	910.0	883.4	1033.5	1054.0	1062.5
50% load in BTU/hr	2892.8	2832.4	2497.0	1118.2	1099.7	1067.3	1167.0	1151.6	1148.5
75% load in BTU/hr	4136.9	4012.0	3502.2	1339.9	1322.5	1261.1	1278.9	1258.1	1239.6
100% load in BTU/hr	5702.0	5487.1	4736.1	1616.3	1562.4	1478.8	1417.7	1379.2	1321.9

40 kW

UPS rating	Normal operation			ECO mode			ECOnversion		
Voltage (V)	**200**	**208**	**220**	**200**	**208**	**220**	**200**	**208**	**220**
25% load in BTU/hr	2214.8	2146.2	1934.7	970.1	969.0	938.3	1069.7	1050.9	1056.4
50% load in BTU/hr	3691.6	3588.9	3139.9	1252.9	1240.3	1191.9	1217.1	1240.0	1193.6
75% load in BTU/hr	5702.0	5487.1	4736.1	1616.3	1562.4	1478.8	1417.7	1379.2	1321.9
100% load in BTU/hr	8332.4	7755.8	6694.6	1890.3	1811.8	1747.0	1808.4	1747.0	1678.8

50 kW

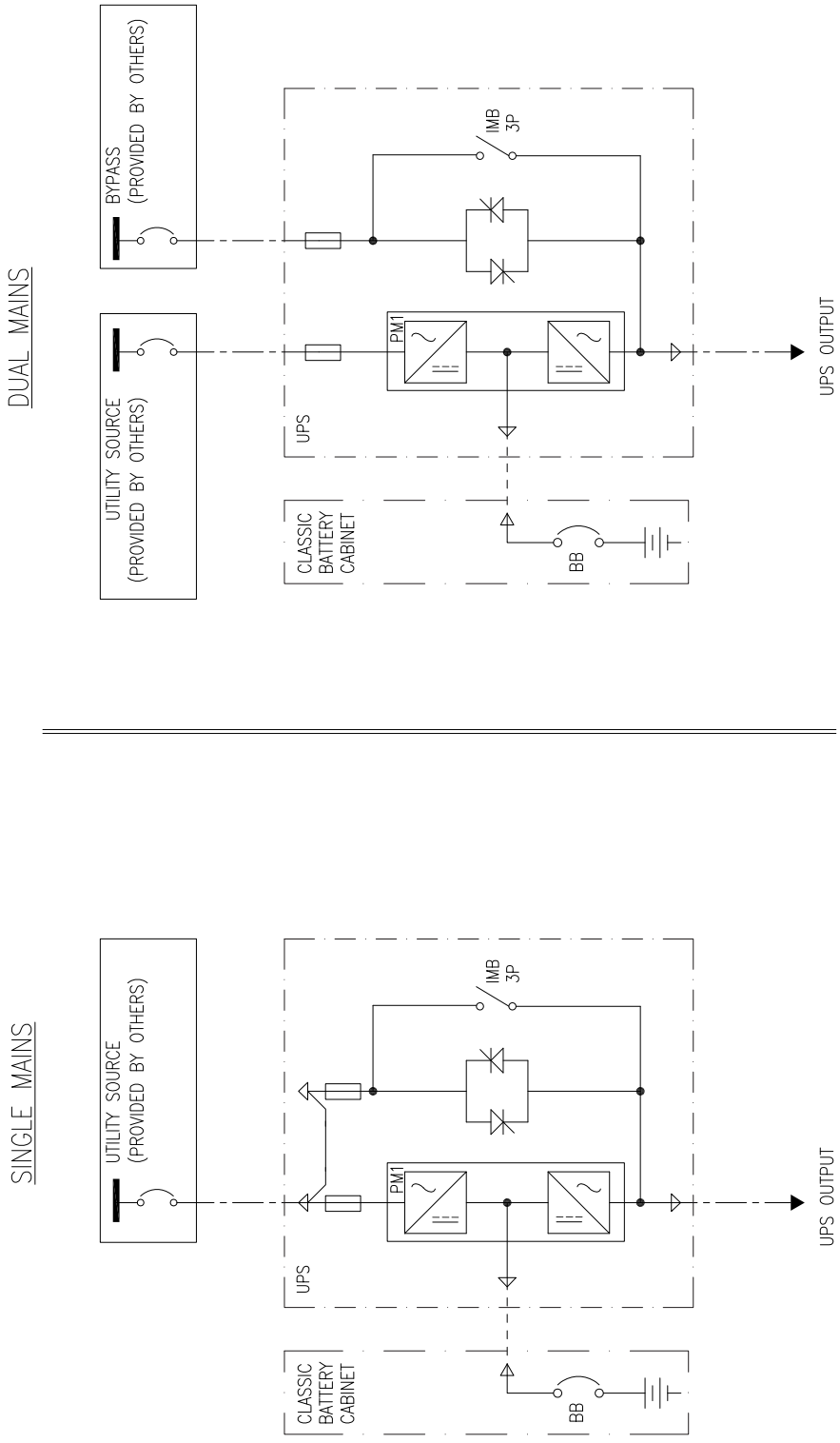
UPS rating	Normal operation			ECO mode			ECOnversion		
Voltage (V)	**200**	**208**	**220**	**200**	**208**	**220**	**200**	**208**	**220**
25% load in BTU/hr	2549.2	2482.3	2203.9	1034.6	1038.0	1000.1	1112.0	1102.8	1135.2
50% load in BTU/hr	4619.4	4480.5	3878.2	1421.2	1401.7	1338.2	1340.3	1290.8	1231.4
75% load in BTU/hr	7592.0	7124.6	6118.0	1784.6	1736.8	1648.1	1730.0	1685.6	1627.6
100% load in BTU/hr	11734.4	10758.5	9079.7	2293.0	2170.1	2095.1	2115.5	2064.3	1992.7

Drawings

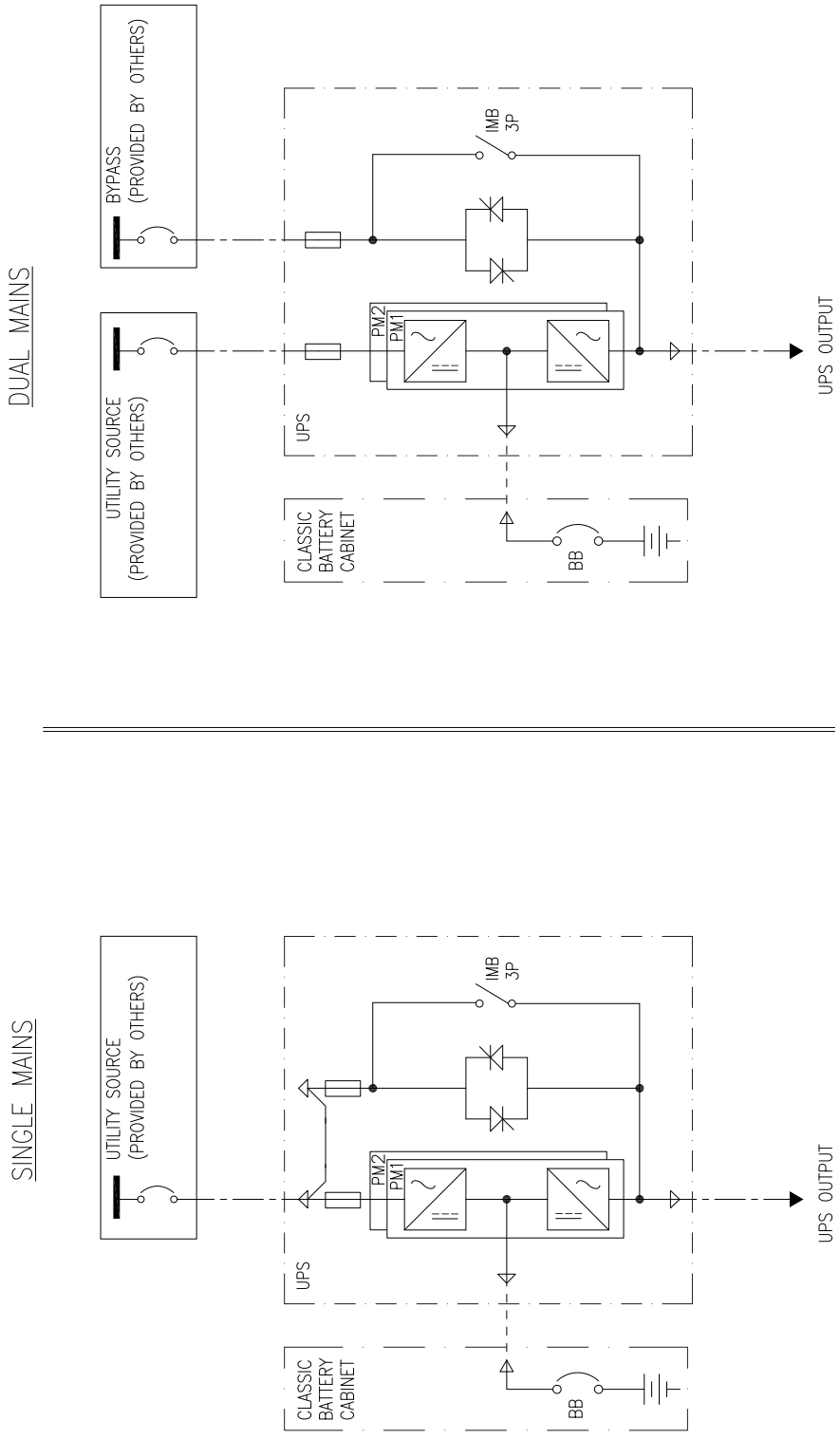
NOTE: A comprehensive set of drawings is available on the engineering website at engineer.apc.com.

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

20–50 kW 400 V/480 V and 10–25 kW 208 V UPS



60–100 kW 400 V/480 V and 30–50 kW 208 V UPS



Options

Hardware Options for IEC Region

Lithium-Ion Battery Cabinet

Battery cabinet including Lithium-Ion batteries and battery breaker.

- Lithium-Ion battery cabinet (LIBATTSMGEIEC)

Classic Battery Cabinets

Classic battery cabinet including batteries and battery breaker.

- 700 mm wide, classic battery cabinet (GVSCBC7A, GVSCBC7B, GVSCBC7C)
- 1000 mm wide, classic battery cabinet (GVSCBC10A, GVSCBC10B)

Empty Battery Cabinets

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

- 700 mm wide empty classic battery cabinet (GVECB7)
- 1100 mm wide empty classic battery cabinet (GVECB11)

Battery Breaker Box

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

- 20–80 kW battery breaker box (GVSBBB20K80H)
- 100–200 kW battery breaker box (GVSBBB100K200H)

Battery Breaker Kit

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

- 20–80 kW battery breaker kit (GVSBBK20K80H)
- 100–200 kW battery breaker kit (GVSBBK100K200H)

Maintenance Bypass Panel

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

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

Auxiliary Cabinets

- Empty auxiliary cabinet (GVEAC7)

Optional Installation Kits

- Seismic kit for UPS (GVSOPT002)

Air Filter

- Air filter kit (GVSOPT001)

Temperature Sensor

- Extra temperature sensor for second battery bank (0J-0M-1160)

Hardware Options for UL Region

Lithium-Ion Battery Cabinet

Battery cabinet including Lithium-Ion batteries and battery breaker.

- Lithium-Ion battery cabinet (LIBATTSMGEUL)

Classic Battery Cabinets

Classic battery cabinet including batteries and battery breaker.

- 700 mm wide, classic battery cabinet (GVSCBT1, GVSCBT2, GVSCBT3)
- 1000 mm wide, classic battery cabinet (GVSCBT4, GVSCBT5)
- 700 mm wide, classic battery cabinet, seismic compliant (GVSCBT1ST, GVSCBT2ST, GVSCBT3ST)
- 1000 mm wide, classic battery cabinet, seismic compliant (GVSCBT4ST, GVSCBT5ST)

Maintenance Bypass Cabinet

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

- 10–40 kW 208 V, 20–80 kW 480 V maintenance bypass cabinet (GVSBPSU80G)
- 50–75 kW 208 V, 100–150 kW 480 V maintenance bypass cabinet (GVSBPSU150G)

Maintenance Bypass Cabinet with Input Transformer

Maintenance bypass cabinet with input transformer for complete isolation of the UPS during service operations. Only for single 208 V UPS.

- 10–25 kW 480 V or 600 V in, 208 V out, maintenance bypass cabinet with input transformer (GVSBPIT25)
- 30–50 kW 480 V or 600 V in, 208 V out, maintenance bypass cabinet with input transformer (GVSBPIT50)

Maintenance Bypass Cabinet with Output Transformer

Maintenance bypass cabinet with output transformer for complete isolation of the UPS during service operations. Only for single 480 V UPS.

- 20–50 kW 480 V in, 208 V out, maintenance bypass cabinet with output transformer (GVSBPOT50)
- 60–100 kW 480 V in, 208 V out, maintenance bypass cabinet with output transformer (GVSBPOT100)

Auxiliary Cabinets

- Empty auxiliary cabinet (GVEAC7)

Optional Installation Kits

- Seismic kit for UPS (GVSOPT002)
- Seismic kit for maintenance bypass cabinet (GVSOPT003)
- Seismic kit for maintenance bypass cabinet with transformer (GVSOPT008)
- Kirk key kit for maintenance bypass cabinet (GVSOPT004)
- Kirk key kit for maintenance bypass cabinet with transformer (GVSOPT007)

- NEMA 2 hole kit for UPS (GVSOPT005)
- Cable kit for second classic battery cabinet (GVSOPT011)

Air Filter

- Air filter kit (GVSOPT001)

Temperature Sensor

- Extra temperature sensor for second battery bank (0J-0M-1160)

Configuration Options

- Compact design, high density technology, and modular architecture
- Single or dual mains
- Default rear or bottom cable entry
- ECO mode
- ECOnversion mode
- EcoStruxure IT compatible
- Generator compatible
- Touchscreen LCD

Limited Factory Warranty

One-Year Factory Warranty

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

Terms of Warranty

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

Non-transferable Warranty

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

Assignment of Warranties

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

Drawings, Descriptions

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

Exclusions

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

caused by end user or any third person misuse, negligence, improper installation or testing. Further, Schneider Electric shall not be liable under the warranty for unauthorized attempts to repair or modify wrong or inadequate electrical voltage or connection, inappropriate on-site operation conditions, corrosive atmosphere, repair, installation, start-up by non-Schneider Electric designated personnel, a change in location or operating use, exposure to the elements, Acts of God, fire, theft, or installation contrary to Schneider Electric recommendations or specifications or in any event if the Schneider Electric serial number has been altered, defaced, or removed, or any other cause beyond the range of the intended use.

THERE ARE NO WARRANTIES, EXPRESS OR IMPLIED, BY OPERATION OF LAW OR OTHERWISE, OF PRODUCTS SOLD, SERVICED OR FURNISHED UNDER THIS AGREEMENT OR IN CONNECTION HEREWITH. SCHNEIDER ELECTRIC DISCLAIMS ALL IMPLIED WARRANTIES OF MERCHANTABILITY, SATISFACTION AND FITNESS FOR A PARTICULAR PURPOSE. SCHNEIDER ELECTRIC EXPRESS WARRANTIES WILL NOT BE ENLARGED, DIMINISHED, OR AFFECTED BY AND NO OBLIGATION OR LIABILITY WILL ARISE OUT OF, SCHNEIDER ELECTRIC RENDERING OF TECHNICAL OR OTHER ADVICE OR SERVICE IN CONNECTION WITH THE PRODUCTS. THE FOREGOING WARRANTIES AND REMEDIES ARE EXCLUSIVE AND IN LIEU OF ALL OTHER WARRANTIES AND REMEDIES. THE WARRANTIES SET FORTH ABOVE CONSTITUTE SCHNEIDER ELECTRIC SOLE LIABILITY AND PURCHASER'S EXCLUSIVE REMEDY FOR ANY BREACH OF SUCH WARRANTIES. SCHNEIDER ELECTRIC WARRANTIES RUN ONLY TO PURCHASER AND ARE NOT EXTENDED TO ANY THIRD PARTIES.

IN NO EVENT SHALL SCHNEIDER ELECTRIC, ITS OFFICERS, DIRECTORS, AFFILIATES OR EMPLOYEES BE LIABLE FOR ANY FORM OF INDIRECT, SPECIAL, CONSEQUENTIAL OR PUNITIVE DAMAGES, ARISING OUT OF THE USE, SERVICE OR INSTALLATION, OF THE PRODUCTS, WHETHER SUCH DAMAGES ARISE IN CONTRACT OR TORT, IRRESPECTIVE OF FAULT, NEGLIGENCE OR STRICT LIABILITY OR WHETHER SCHNEIDER ELECTRIC HAS BEEN ADVISED IN ADVANCE OF THE POSSIBILITY OF SUCH DAMAGES, SPECIFICALLY, SCHNEIDER ELECTRIC IS NOT LIABLE FOR ANY COSTS, SUCH AS LOST PROFITS OR REVENUE, LOSS OF EQUIPMENT, LOSS OF USE OF EQUIPMENT, LOSS OF SOFTWARE, LOSS OF DATA, COSTS OF SUBSTITUANTS, CLAIMS BY THIRD PARTIES, OR OTHERWISE.

NO SALESMAN, EMPLOYEE OR AGENT OF SCHNEIDER ELECTRIC IS AUTHORIZED TO ADD TO OR VARY THE TERMS OF THIS WARRANTY. WARRANTY TERMS MAY BE MODIFIED, IF AT ALL, ONLY IN WRITING SIGNED BY AN SCHNEIDER ELECTRIC OFFICER AND LEGAL DEPARTMENT.

Warranty Claims

Customers with warranty claims issues may access the SCHNEIDER ELECTRIC worldwide customer support network through the SCHNEIDER ELECTRIC web site: *http://www.schneider-electric.com*. Select your country from the country selection pull-down menu. Open the Support tab at the top of the web page to obtain contact information for customer support in your region.

Schneider Electric
35 rue Joseph Monier
92500 Rueil Malmaison
France

+ 33 (0) 1 41 29 70 00

990-91141-001

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

© 2019 – 2019 Schneider Electric. All rights reserved.

990–91141–001