

Galaxy 300

10–40 kVA

Installation

Emergency Lighting

11/2015



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.

Table of Contents

Important Safety Information	5
Safety Precautions	6
Electrical Safety	8
Battery Safety	9
Specifications	11
AC Input Specifications	11
3:3 and 3:1 UPS	11
AC Output Specifications	12
3:3 UPS	12
3:1 UPS	12
Battery Specifications	13
Galaxy 300 Heat Dissipation	13
3:3 UPS	13
3:1 UPS	13
Recommended Cable Sizes	14
Overcurrent Protection	14
Recommended Upstream Protection	14
Recommended Downstream Protection	15
Torque Specifications	15
UPS Product Overview	16
Prepare for Installation	24
Floor Anchoring	24
Method 1: Unlimited Space Available	24
Method 2: Limited Space Available	24
Prepare UPS for Cables	26
Connect the UPS Power Cables	27
Install Backfeed Protection	30
Install External Backfeed Protection	30
Connect the UPS Signal Cables	32
Connect the Signal Cables to the UPS	32
Connect the EPO Cable to the UPS	34
Connect the Optional Signal Cables	36
Install Battery Solution	37
Battery Cabinet Product Overview	38
Battery Cabinet (G3HTBAT1)	38
Battery Cabinet (SYPBV96K160HB, G55TBATL10B and G55TBAT2L7C)	38
Battery Cabinet Clearance	40
Install a Galaxy 300 Battery Cabinet (G3HTBAT1, G3HTBAT2, and G3HTBAT3)	41
Prepare Galaxy 300 Battery Cabinet (1300 mm) for Cables	41
Connect Battery Cables from UPS to the Galaxy 300 Battery Cabinet (1300 mm)	44
Connect External Battery Temperature (ATIZ) and External Battery Breaker Signal between the UPS and the Galaxy 300 Battery Cabinet (1300 mm)	44

Connect Battery and Signal Cables from the Battery Cabinet (G3HTBAT1) to a Running UPS	46
Install a Battery Cabinet (SYPBV96K160HB, G55TBATL10B, and G55TBAT2L7C).....	49
Remove Battery Protection on Batteries	49
Connect Battery Cables from the UPS to the Battery Cabinet (SYPBV96K160HB, G55TBATL10B, or G55TBAT2L7C).....	49
Connect Signal Cables Between the UPS and the Battery Cabinet (SYPBV96K160HB, G55TBATL10B and G55TBAT2L7C)	50
Connect the Deep Discharge Signal Cables Between the Battery Cabinet and the UPS.....	52
Checklist after Installation.....	53

Important Safety Information

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.

Safety Precautions

⚠ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

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

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

⚠ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

Read all instructions in the Installation Manual before installing or working on this UPS system.

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

⚠ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

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

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

⚠ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

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

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

⚠ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

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

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

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

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

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

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

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

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

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

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

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

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

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

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

⚠ WARNING**HAZARD OF ARC FLASH**

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

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

⚠ WARNING**HAZARD OF OVERHEATING**

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

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

⚠ WARNING**HAZARD 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 death, serious injury, or equipment damage.

Electrical Safety**⚠ DANGER****HAZARD OF ELECTRIC SHOCK, EXPLOSION OR ARC FLASH**

- Electrical equipment must be installed, operated, serviced, and maintained only by qualified personnel.
- The UPS system must be installed in a room with restricted access (qualified personnel only).
- Apply appropriate personal protective equipment (PPE) and follow safe electrical work practices.
- Turn off all power supplying the UPS system before working on or inside the equipment.
- Before working on the UPS system, check for hazardous voltage between all terminals including the protective earth.
- The UPS contains an internal energy source. Hazardous voltage can be present even when disconnected from the utility/mains supply. Before installing or servicing the UPS system, ensure that the units are OFF and that utility/mains and batteries are disconnected. Wait five minutes before opening the UPS to allow the capacitors to discharge.
- A disconnection device (e.g. disconnection circuit breaker or switch) must be installed to enable isolation of the system from upstream power sources in accordance with local regulations. This disconnection device must be easily accessible and visible.
- The UPS must be properly earthed/grounded and due to a high leakage current, the earthing/grounding conductor must be connected first.

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

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

In systems where backfeed protection is not part of the standard design, an automatic isolation device (backfeed protection option or other device meeting the requirements of IEC/EN 62040–1 or UL 1778 4th Edition – depending on which of the two standards apply to your local area) must be installed to prevent hazardous voltage or energy at the input terminals of the isolation device. The device must open within 15 seconds after the upstream power supply fails and must be rated according to the specifications.

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

When the UPS input is connected through external isolators that, when opened, isolate the neutral or when the automatic backfeed isolation is provided external to the equipment or is connected to an IT power distribution system, a label must be fitted at the UPS input terminals, and on all primary power isolators installed remote from the UPS area and on external access points between such isolators and the UPS, by the user, displaying the following text (or equivalent in a language which is acceptable in the country in which the UPS system is installed):

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

Risk of Voltage Backfeed. Before working on this circuit: Isolate the UPS and check for hazardous voltage between all terminals including the protective earth.

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

Battery Safety**⚠ DANGER****HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH**

- Battery circuit breakers must be installed according to the specifications and requirements as defined by Schneider Electric.
- Servicing of batteries must only be performed or supervised by qualified personnel knowledgeable of batteries and the required precautions. Keep unqualified personnel away from batteries.
- Disconnect charging source prior to connecting or disconnecting battery terminals.
- Do not dispose of batteries in a fire as they can explode.
- Do not open, alter, or mutilate batteries. Released electrolyte is harmful to the skin and eyes. It may be toxic.

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

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

Batteries can present a risk of electric shock and high short-circuit current. The following precautions must be observed when working on batteries

- Remove watches, rings, or other metal objects.
- Use tools with insulated handles.
- Wear protective glasses, gloves and boots.
- Do not lay tools or metal parts on top of batteries.
- Disconnect the charging source prior to connecting or disconnecting battery terminals.
- Determine if the battery is inadvertently grounded. If inadvertently grounded, remove source from ground. Contact with any part of a grounded battery can result in electric shock. The likelihood of such shock can be reduced if such grounds are removed during installation and maintenance (applicable to equipment and remote battery supplies not having a grounded supply circuit).

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

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

When replacing batteries, always replace with the same type and number of batteries or battery packs.

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

⚠ CAUTION**RISK OF EQUIPMENT DAMAGE**

- Wait until the system is ready to be powered up before installing batteries in the system. The time duration from battery installation until the UPS system is powered up must not exceed 72 hours or 3 days.
- Batteries must not be stored more than six months due to the requirement of recharging. If the UPS system remains de-energized for a long period, we recommend that you energize the UPS system for a period of 24 hours at least once every month. This charges the batteries, thus avoiding irreversible damage.

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

Specifications

AC Input Specifications

3:3 and 3:1 UPS

	10 kVA			15 kVA			20 kVA		
Voltage	380	400	415	380	400	415	380	400	415
Connection type	3PH + N + PE								
Input frequency (Hz)	45–65								
THDI	< 9% at full load								
Nom. input current (A) ¹	13	12.5	12	20	19	18	26	25	24
Max. input current (A) ²	15.5	15	14.5	22.5	21.5	20.5	29	28	27
Input current limitation (A) ³	17.5	17	16	25	24	22.5	32	31	30
Input power factor correction	> 0.97 at load > 50%								

	30 kVA			40 kVA ⁴		
Voltage	380	400	415	380	400	415
Connection type	3PH + N + PE					
Input frequency (Hz)	45–65					
THDI	< 9% at full load					
Nom. input current (A) ¹	39.5	38	36	53	50	48
Max. input current (A) ²	42	40.5	38.5	56	53	51
Input current limitation (A) ³	47	45	42.5	61	59	56
Input power factor correction	> 0.97 at load > 50%					

1. Input current based on rated load and batteries fully charged.
2. Input current based on full battery recharge, nominal voltage, and rated load.
3. Current limitation through electronic current limiting is based on full battery recharge and -15% input voltage.
4. Only available in 3:3 versions.

AC Output Specifications

3:3 UPS: 380, 400, 415 V (400 V 50 Hz is standard but 60 Hz is also possible). Operation at 415 V/60 Hz is not allowed. For all other voltages or voltage combinations, voltage-matching transformers are required.

3:1 UPS: 220, 230, 240 V (230 V is standard).

The operating voltage is set via the personalization procedures. The setting may result in an overload if the output voltage is +3% and the current is at its rated level.

NOTE: In battery operation overload is not supported.

3:3 UPS

	10 kVA			15 kVA			20 kVA			30 kVA			40 kVA		
Voltage (V)	380	400	415	380	400	415	380	400	415	380	400	415	380	400	415
Connection type	3PH + N + PE														
Output overload capacity	<125% for 2 minutes <150% for 10 seconds														
Voltage tolerance	±2%														
Nom. output current (A)	15	14.5	14	23	22	21	30	29	27	45	43	41.5	60	58	55
Output frequency (Hz)(sync to mains)	50/60														
Slew rate (Hz/s)	Default: 2 Hz/s. Can be configured as 1 Hz/s.														
THDU	< 3.0% linear loads < 5.0%. 100% unbalanced 100% non-linear loads														
Output power factor	From 0.5 leading to 0.5 lagging.														
Dynamic load response	±5%														
Output voltage regulation	±2%														

3:1 UPS

	10 kVA			15 kVA			20 kVA			30 kVA		
Voltage (V)	220	230	240	220	230	240	220	230	240	220	230	240
Output overload capacity	<125% for 2 minutes <150% for 10 seconds											
Connection type	1PH + N + PE											
Voltage tolerance	±2%											
Nom. output current (A)	45	43	42	68	65	62	90	87	83	136	130	125
Output frequency (Hz) (sync to mains)	50/60											
Slew rate (Hz/Sec)	Default: 2 Hz/s. Can be configured as 1 Hz/s.											
THDU	< 3.0% linear loads < 5.0%. 100% non-linear loads											
Output power factor	From 0.5 leading to 0.5 lagging.											
Dynamic load response	±5%											
Output voltage regulation	±2%											

Battery Specifications

	10 kVA	15 kVA	20 kVA	30 kVA	40 kVA
Type	VRLA (Valve-Regulated Lead Acid) Battery				
Nom. voltage (16 blocks/15 blocks) (VDC)	± 192 / ±180				
Float voltage (16 blocks/15 blocks) (VDC)	± 218 / ±204				
End of discharge voltage (VDC) at 100% load	± 158 / ±148				
Max. charging power for UPS with CLA charger (may drop to lower values at low AC input) ⁵	3052 W	3052 W	3052 W	6104 W	6104 W
Typical recharge time	CLA: (for external battery configuration) 24 hours - to 90% ±5% capacity after full discharge at min. Config.				
Nom. voltage (V)	12 V/block				
End voltage (V)	9.9 V/block (varies from 11.4 V to 9.9 V corresponding to load percentage from low to high)				
I _{Nom} discharge ⁶ (A) (15 blocks)	25	37	50	74	99
I _{Max} discharge ⁷ (A) (15 blocks)	30	45	60	90	120

Galaxy 300 Heat Dissipation

3:3 UPS

Heat dissipation ⁸	10 kVA			15 kVA			20 kVA		
Load (%)	100	75	50	100	75	50	100	75	50
Heat dissipation (Watt)	656	514	420	937	712	514	1260	937	656

Heat dissipation ⁸	30 kVA			40 kVA		
Load (%)	100	75	50	100	75	50
Heat dissipation (Watt)	1804	1313	945	2479	1804	1195

3:1 UPS

Heat dissipation ⁸	10 kVA			15 kVA		
Load (%)	100	75	50	100	75	50
Heat dissipation (Watt)	707	577	463	1045	786	577

Heat dissipation ⁸	20 kVA			30 kVA		
Load (%)	100	75	50	100	75	50
Heat dissipation (Watt)	1212	888	612	1876	1417	1029

5. UPS with CLA charger is to be used with external batteries ONLY.
6. Nominal battery discharge current based on rated load and nominal battery voltage.
7. Maximum battery discharge current based on rated load at the end of the discharge.
8. Batteries fully charged.

Recommended Cable Sizes

All wiring must comply with all applicable national and/or electrical codes. The below specifications are recommendations only.

AC cable sizes are determined for:

- the TNS or IT system for copper, single-core cables, type U1000 R02V, 100 m long with a line voltage drop <3%, installed on perforated cable trays, XLPE-type insulation, single-layer trefoil formation, THDI between 15% and 33%, 35° C at 400 V, grouped in four touching cables.

Battery cable sizes are determined for:

- copper, single-core cables, type U1000 R02V, maximum length 25 m with a line voltage drop <1%.

3:3 UPS	10 kVA		15 kVA		20 kVA		30 kVA		40 kVA	
	min	max	min	max	min	max	min	max	min	max
Mains input (mm ²)	10	35	10	35	10	35	16	35	25	35
AC output (mm ²)	10	35	10	35	10	35	16	35	25	35
Battery input (mm ²) 70° C	10	35	10	35	16	35	25	35	35	35

3:1 UPS	10 kVA		15 kVA		20 kVA		30 kVA	
	min	max	min	max	min	max	min	max
Mains input (mm ²)	16	35	25	35	35	90	70	90
AC output (mm ²)	16	35	25	35	35	90	70	90
Battery input (mm ²) 70° C	10	35	10	35	16	35	25	35

Overcurrent Protection

⚠ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

The recommended minimum residual current protection is 3A, provided the conditions defined in IEC60364-4-41 are respected.

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

NOTE: These protection systems ensure protection on all of the output circuits connected to the unit. If the recommended downstream protection is not installed, the result may be breaks in the supply of power longer than 20 milliseconds on all the other output circuits.

NOTE: When the bypass source is within tolerance, the load is instantaneously transferred to the bypass input and the upstream and downstream protection devices ensures system protection.

NOTE: The short-circuit current of the installation must be less than the maximum current of the downstream circuit breaker.

Recommended Upstream Protection

3:3 UPS	10 kVA	15 kVA	20 kVA	30 kVA	40 kVA
CB on input	C65H-D-4P-63A/C60H-D-4P-63A			C120H-D-4P-80A	C120H-D-4P-125A

3:1 UPS	10 kVA	15 kVA	20 kVA	30 kVA
CB on input	C65H-D-4P-63A/ C60H-D-4P-63A	C120H-D-4P-125A	NSX250F TM200D 4P	NSX250F TM250D 4P

Recommended Downstream Protection

NOTE: The circuit breakers C65 and C60 are the same but applicable in different regions. The C65 series must be used in China and the C60 series must be used in all other countries.

3:3 UPS	10 kVA	15 kVA	20 kVA	30 kVA	40 kVA
Downstream CB	C65N-B-4P-10A/C60N-B-4P-10A C65N-B-4P-10A/C60N-C-4P-6A			C65N-B-4P-16A/ C60N-B-4P-16A C65N-C-4P-10A/ C60N-C-4P-10A	C65N-B-4P-20A/ C60N-B-4P-20A C65N-C-4P-10A/ C60N-C-4P-10A
3:1 UPS	10 kVA	15 kVA	20 kVA	30 kVA	
Downstream CB	C65N-B-2P-25A/C60N-B-2P-25A C65N-C-2P-10A/C60N-C-2P-10A			C65N-B-2P-32A/ C60N-B-2P-32A C65N-C-2P-16A/ C60N-C-2P-16A	C65N-B-2P-50A/ C60N-B-2P-50A C65N-C-2P-25A/ C60N-C-2P-25A

Torque Specifications

Bolt size	Torque
M3	1 Nm
M4	1.2 Nm – 2 Nm
M5	3.5 Nm – 4.5 Nm
M6	4.5 Nm – 6 Nm
For batteries: Use the torque recommended by Schneider Electric or by the third party battery vendor.	

UPS Product Overview

Emergency Lighting Model List

3:1 Input: Output Configuration with 60 Minutes Runtime

kVA	kW	Single PTO SKU	Description
10	6.6	G3H10K3IM6X710	Emergency lighting Galaxy 300 UPS 10 kVA 400 V 3:1 CLA TM 60 minutes
15	9.6	G3H15K3IM6X710	Emergency lighting Galaxy 300 UPS 15 kVA 400 V 3:1 CLA TM 60 minutes
20	13.3	G3H20K3IM6X710	Emergency lighting Galaxy 300 UPS 20 kVA 400 V 3:1 CLA TM 60 minutes
30	15.6	G3H303IM6AX710	Emergency lighting Galaxy 300 UPS 30 kVA 400 V 3:1 CLA TM 60 minutes
30	20	G3H303IM6BX710	Emergency lighting Galaxy 300 UPS 30 kVA 400 V 3:1 CLA TM 60 minutes

3:3 Input: Output Configuration with 60 Minutes Runtime

kVA	kW	Single PTO SKU	Description
10	6.6	G3H10KH6T6X710	Emergency lighting Galaxy 300 UPS 10 kVA 400 V 3:3 CLA TT 60 minutes
15	9.6	G3H15KH6T6X710	Emergency lighting Galaxy 300 UPS 15 kVA 400 V 3:3 CLA TT 60 minutes
20	13.3	G3H20KH6T6X710	Emergency lighting Galaxy 300 UPS 20 kVA 400 V 3:3 CLA TT 60 minutes
30	15.6	G3H30KH6T6AX710	Emergency lighting Galaxy 300 UPS 30 kVA 400 V 3:3 CLA TT 60 minutes
30	20	G3H30KH6T6BX710	Emergency lighting Galaxy 300 UPS 30 kVA 400 V 3:3 CLA TT 60 minutes
40	26.6	G3H40KH6T6X710	Emergency lighting Galaxy 300 UPS 40 kVA 400 V 3:3 CLA TT 60 minutes

3:1 Input: Output Configuration with 90 Minutes Runtime

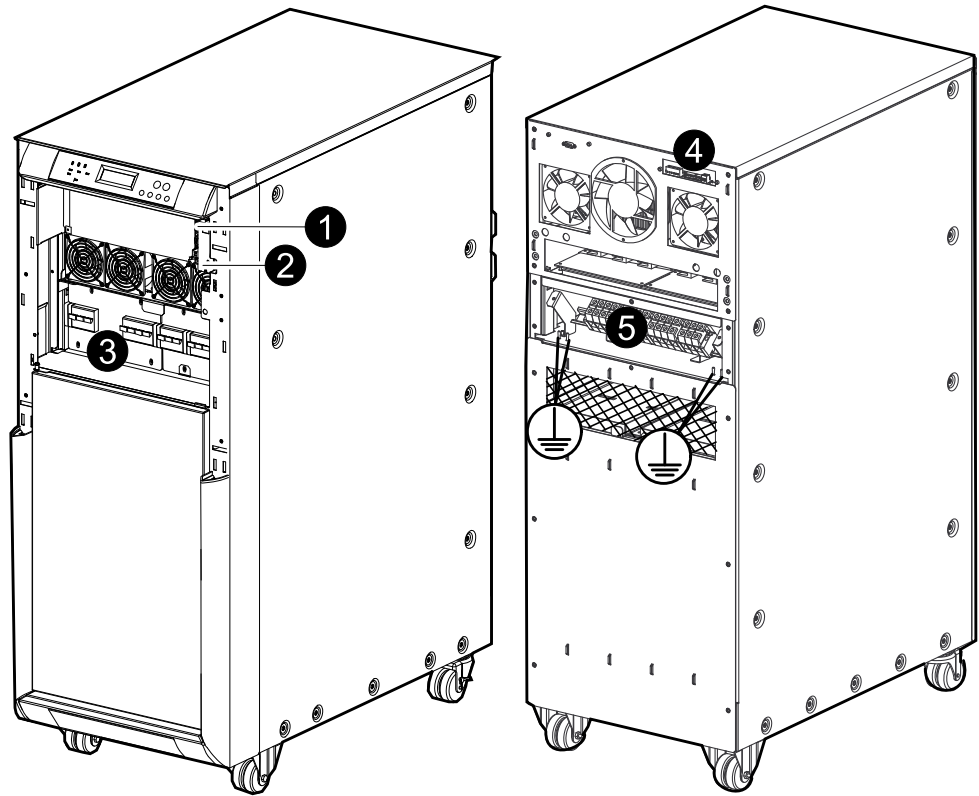
kVA	kW	Single PTO SKU	Description
10	6.6	G3H10K3IM9X710	Emergency lighting Galaxy 300 UPS 10 kVA 400 V 3:1 CLA TM 90 minutes
15	9.6	G3H15K3IM9X710	Emergency lighting Galaxy 300 UPS 15 kVA 400 V 3:1 CLA TM 90 minutes
20	11.6	G3H20K3IM9X710	Emergency lighting Galaxy 300 UPS 20 kVA 400 V 3:1 CLA TM 90 minutes
30	14.4	G3H30K3IM9X710	Emergency lighting Galaxy 300 UPS 30 kVA 400 V 3:1 CLA TM 90 minutes

3:3 Input: Output Configuration with 90 Minutes Runtime

kVA	kW	Single PTO SKU	Description
10	6.6	G3H10KH9TT9X710	Emergency lighting Galaxy 300 UPS 10 kVA 400 V 3:3 CLA TT 90 minutes
15	9.6	G3H15KH9TT9X710	Emergency lighting Galaxy 300 UPS 15 kVA 400 V 3:3 CLA TT 90 minutes
20	11.6	G3H20KH9TT9X710	Emergency lighting Galaxy 300 UPS 20 kVA 400 V 3:3 CLA TT 90 minutes
30	14.4	G3H30KH9TT9X710	Emergency lighting Galaxy 300 UPS 30 kVA 400 V 3:3 CLA TT 90 minutes

30/40 kVA 3:3

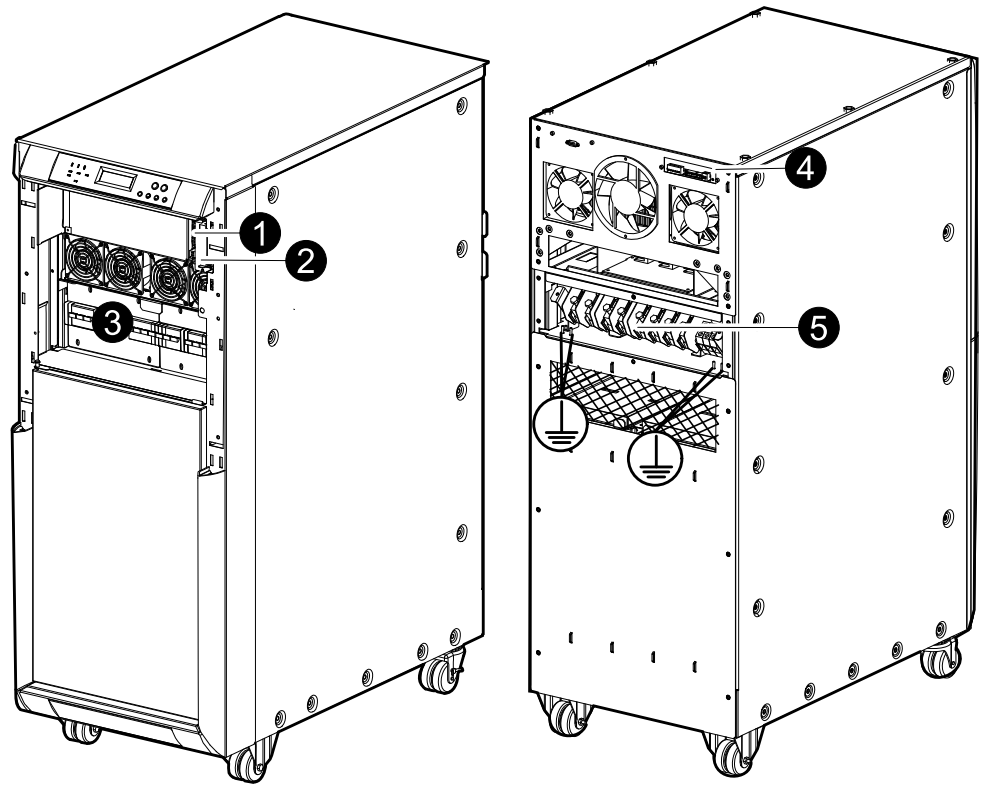
Front View and Rear View



1. Communication board (only for Schneider Electric Service)
2. Network management card
3. Breakers
4. Dry contact terminal, EPO, external battery breaker signal, and external battery temperature (ATIZ)
5. Power terminals

30 kVA 3:1

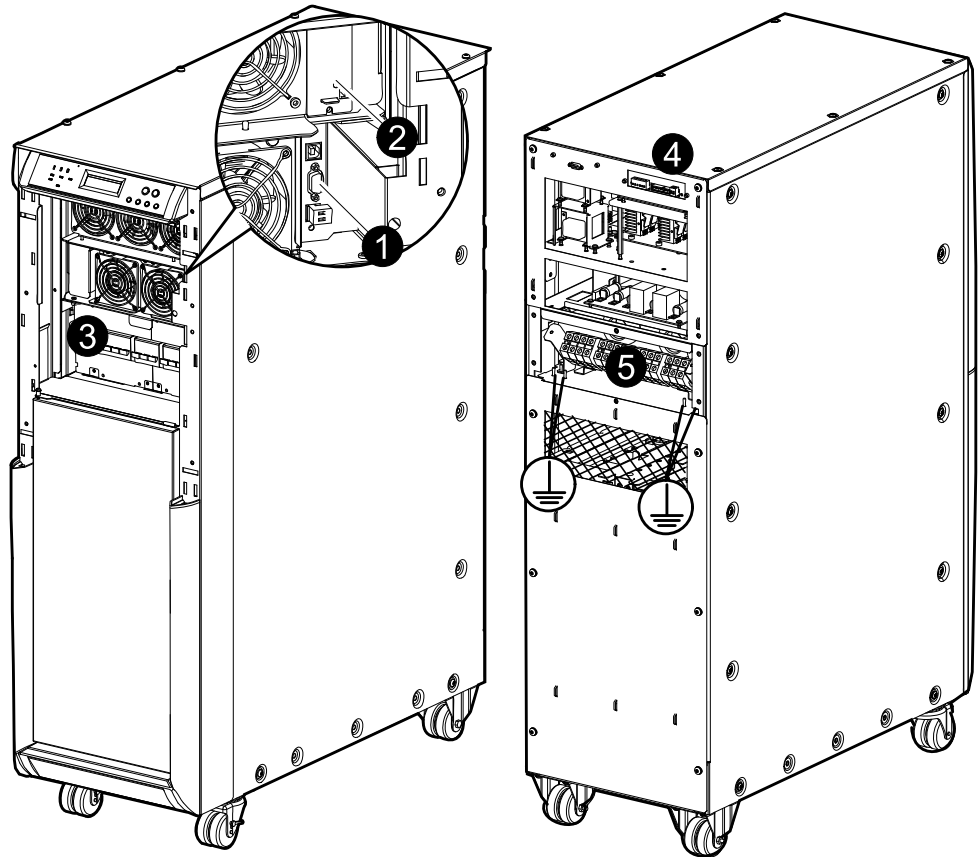
Front View and Rear View



1. Communication board (only for Schneider Electric Service)
2. Network management card
3. Breakers
4. Dry contact terminal, EPO, external battery breaker signal, and external battery temperature (ATIZ)
5. Power terminals

10/15/20 kVA 3:3

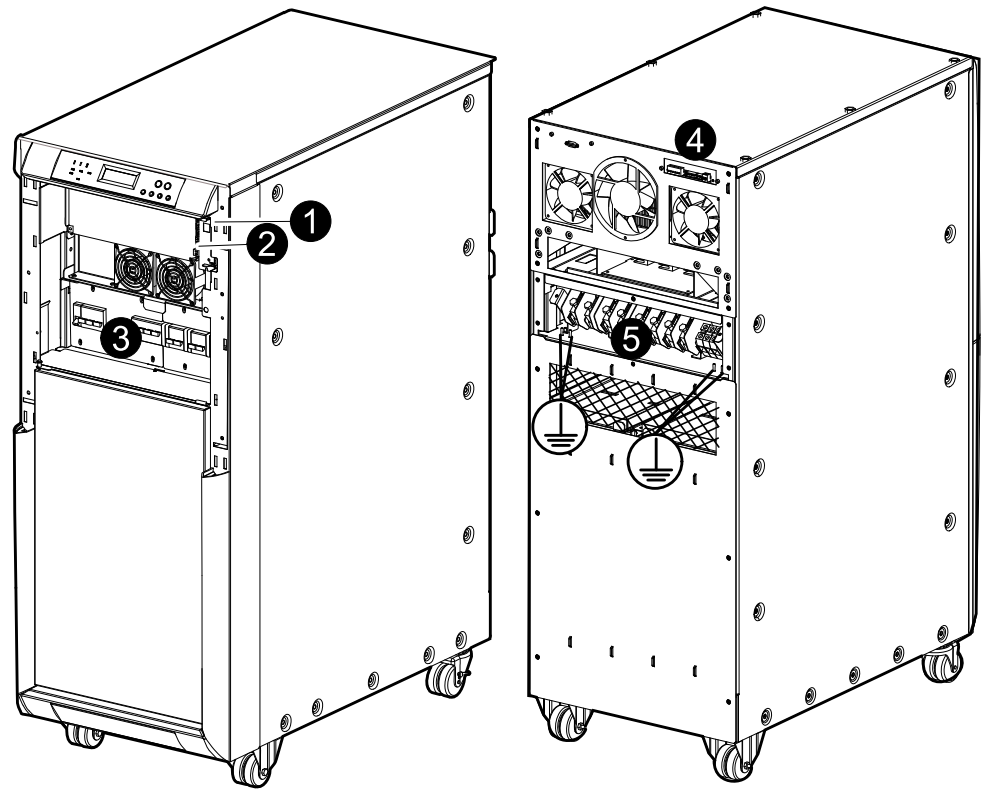
Front View and Rear View



1. Communication board (only for Schneider Electric Service)
2. Network management card
3. Breakers
4. Dry contact terminal, EPO, external battery breaker signal, and external battery temperature (ATIZ)
5. Power terminals

20 kVA 3:1

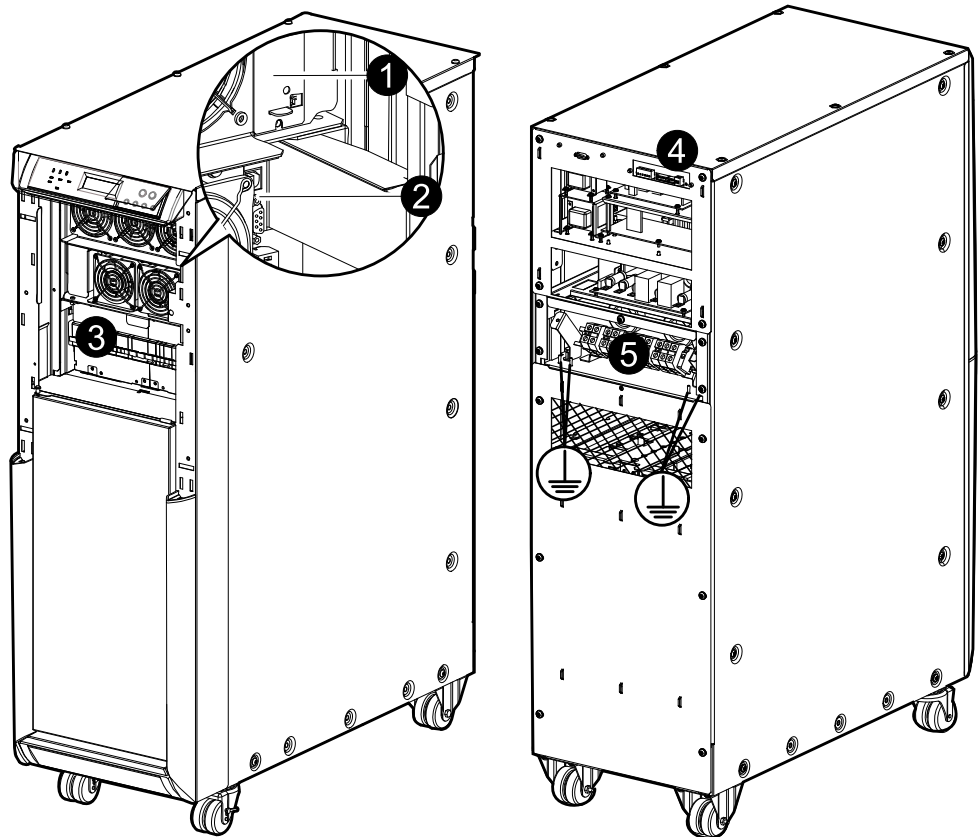
Front View and Rear View



1. Communication board (only for Schneider Electric Service)
2. Network management card
3. Breakers
4. Dry contact terminal, EPO, external battery breaker signal, and external battery temperature (ATIZ)
5. Power terminals

10/15 kVA 3:1

Front View and Rear View

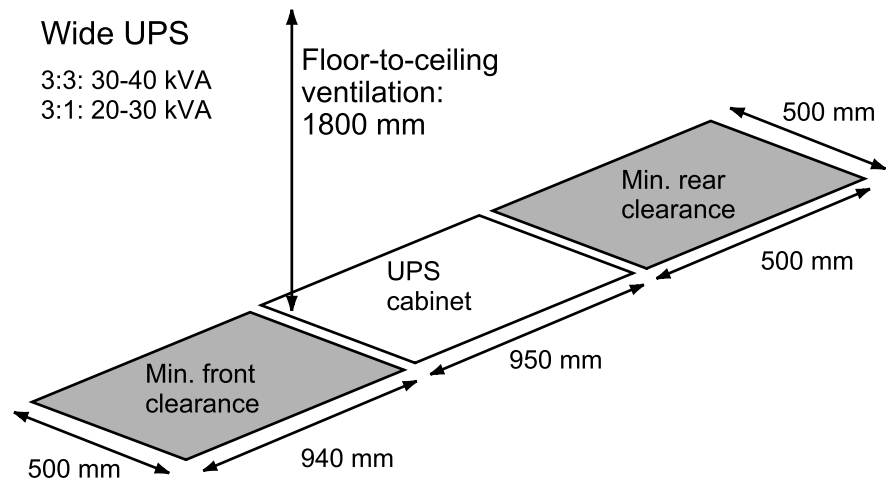
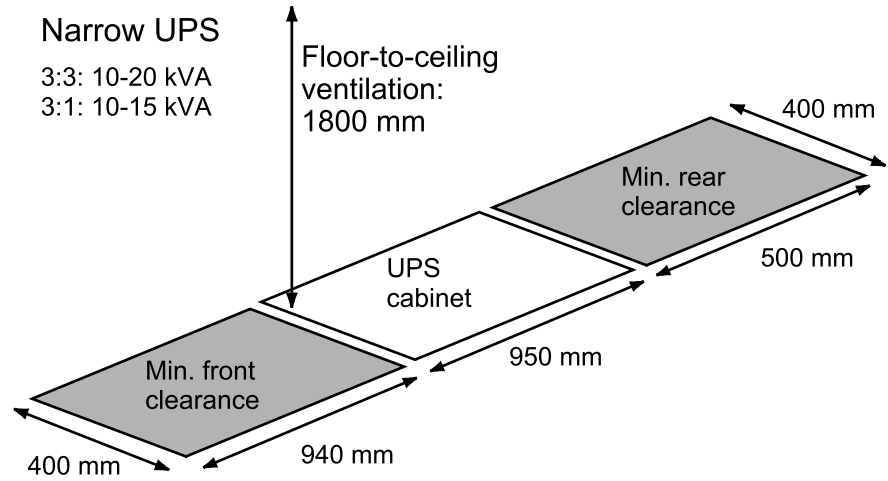


1. Communication board (only for Schneider Electric Service)
2. Network management card
3. Breakers
4. Dry contact terminal, EPO, external battery breaker signal, and external battery temperature (ATIZ)
5. Power terminals

UPS Cabinet 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: 500 mm rear service clearance is recommended.



Prepare for Installation

Floor Anchoring

⚠ CAUTION

HAZARD OF TILTING

The UPS must be anchored to the floor because it is top-heavy.

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

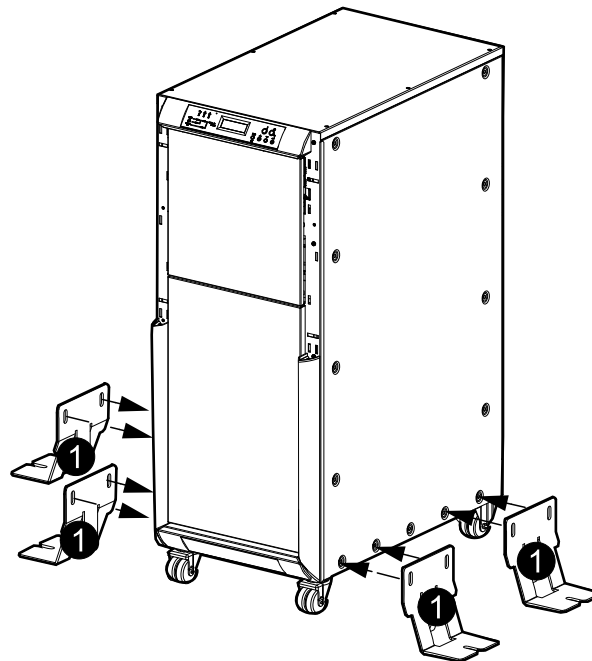
NOTE: The UPS system and battery cabinet must be installed on a non-inflammable, level, and solid floor.

NOTE: The UPS can be anchored to the floor in two ways depending on the available floor space.

Method 1: Unlimited Space Available

1. Mount the four brackets on the UPS as shown.

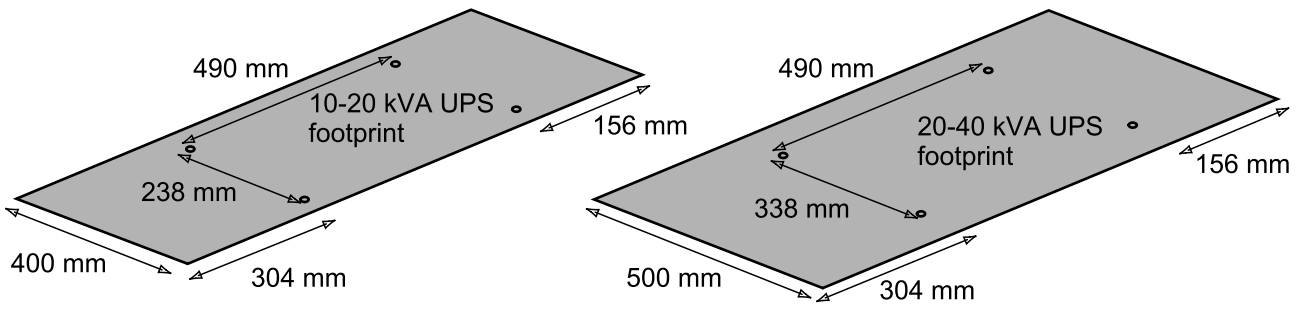
Front View



Method 2: Limited Space Available

1. Drill four holes according to the UPS footprint (see illustration) and install four M8 bolts into the floor for anchoring.

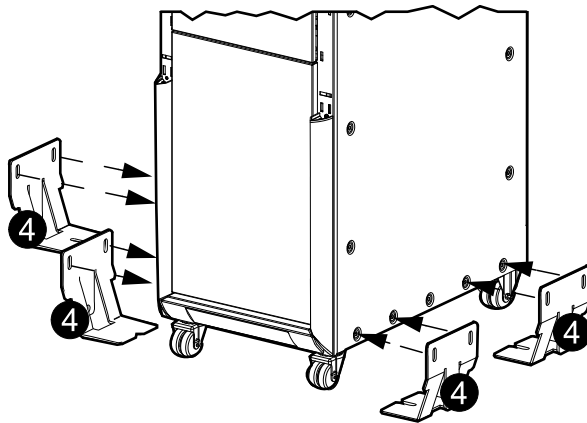
2. Tighten the bolts.



3. Push the UPS in between the four floor bolts.

4. Mount the four brackets on the UPS.

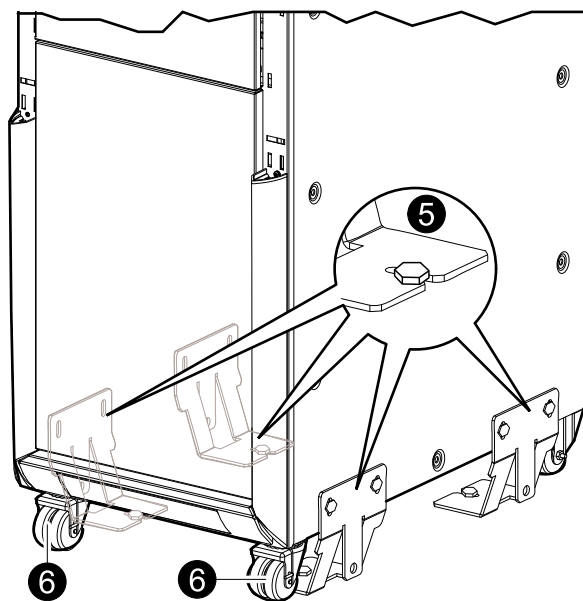
Front View



5. Make sure that the slots on each bracket grasp the floor bolts.

6. Lock the two front wheels by tightening the screws.

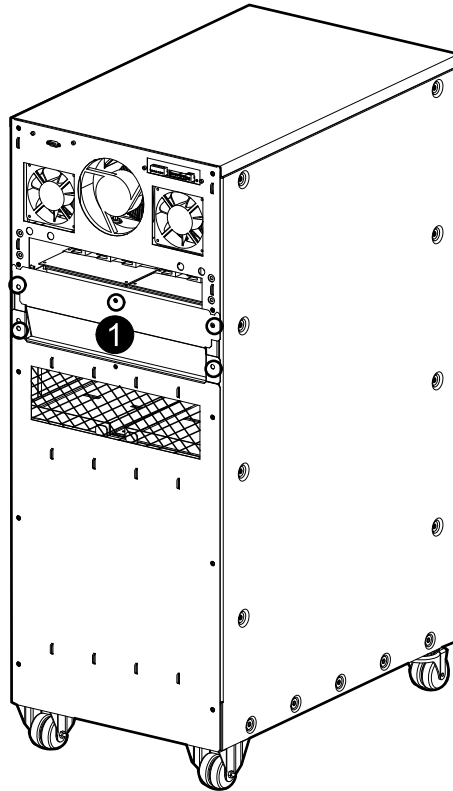
Front View



Prepare UPS for Cables

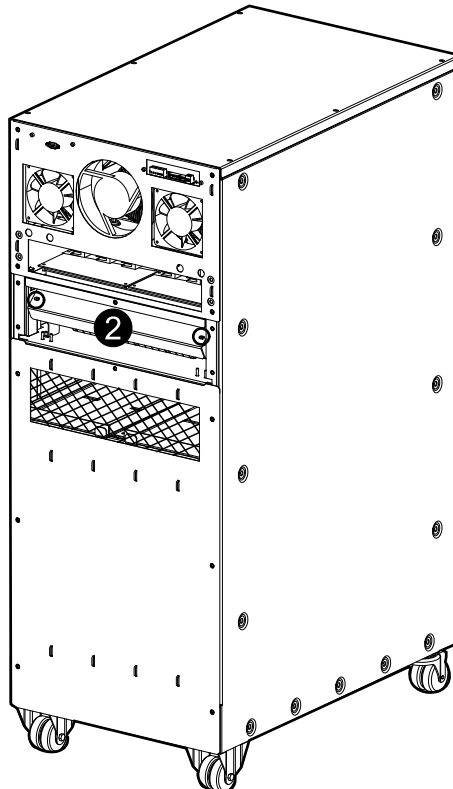
1. Loosen the five screws and remove the I/O sheet metal cover.

Rear View



2. Loosen the two screws and remove the plastic cover.

Rear View



Connect the UPS Power Cables

DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

In frequency converter operation mode the maintenance bypass breaker (Q3BP) and the static bypass breaker (QM2) must be in the OFF (opened) position.

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

NOTICE

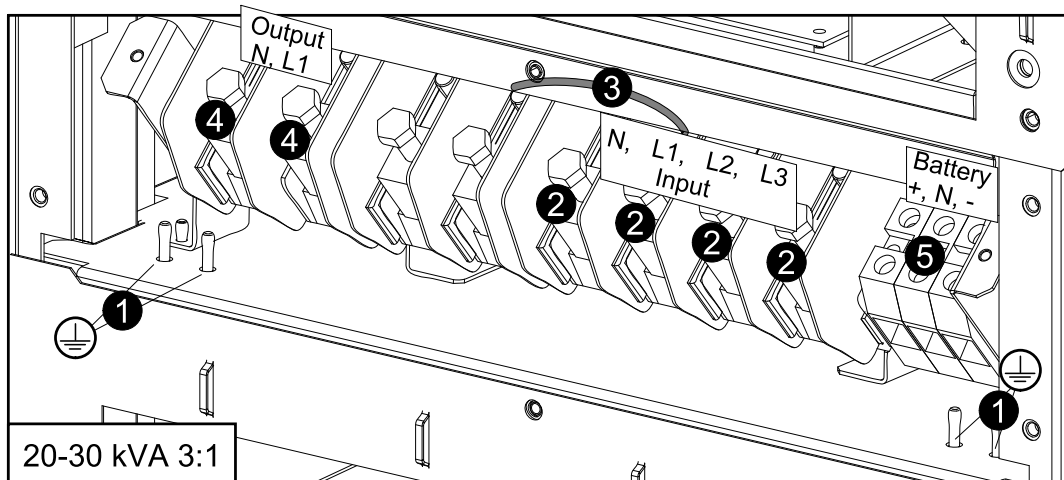
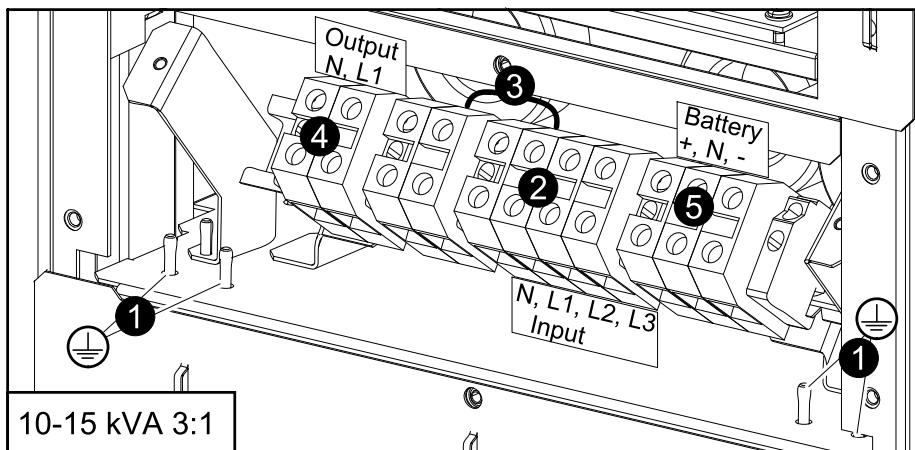
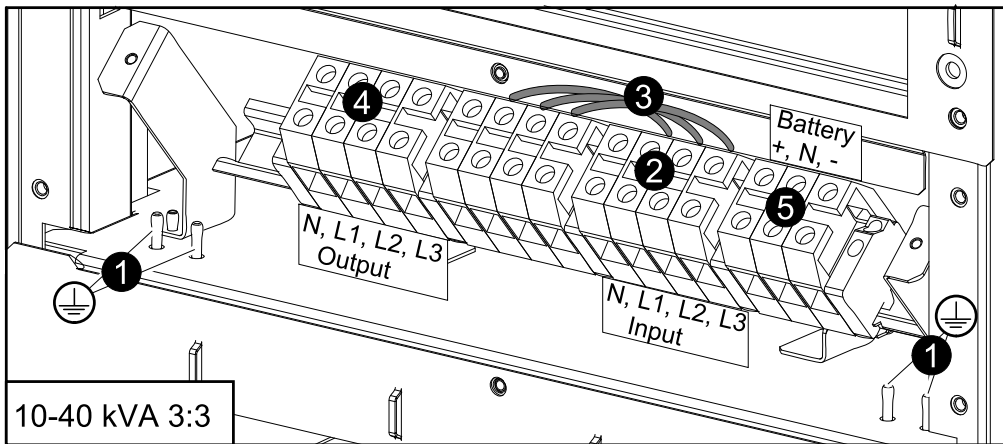
RISK OF ERRATIC SYSTEM OPERATION

If the neutral line connection is not reliable, the system will work abnormally.

Failure to follow these instructions can result in equipment damage.

NOTE: A padlock is available from Schneider Electric and is advisable to use (padlock catalog number: 26970).

Rear View of the UPS



1. Connect the PE-cables for input, for bypass, and for the load.
2. Connect the input cables (N, L1, L2, L3) to the input terminals starting with N.
3. Remove the cable(s) between the bypass and the input terminals.
4. Connect the cables from the load to the output terminals. 3:3 (N, L1, L2, L3), 3:1 (N and L1).
5. Connect the battery cables (BAT+, N, BAT-) to the battery terminals. The battery cables will be connected to the external battery solution later.

6. Reinstall the plastic cover and the I/O sheet metal cover removed in *Prepare UPS for Cables*, page 26.

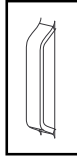
⚠ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

The I/O sheet metal cover must be fixed in the lowest position for safety reasons.

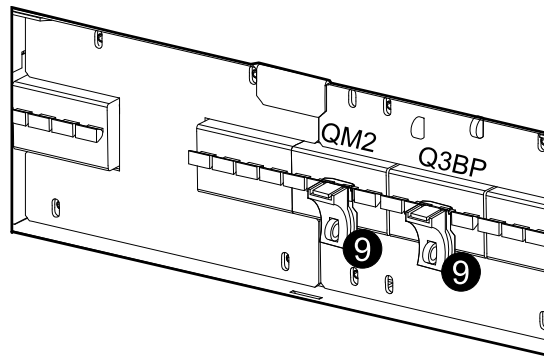
Failure to follow these instructions will result in death or serious injury.

7. Bundle the input cables, the battery cables, and the output cables as three separate groups of cables.
8. Attach all cables to the fixtures (shown below) with cable ties.

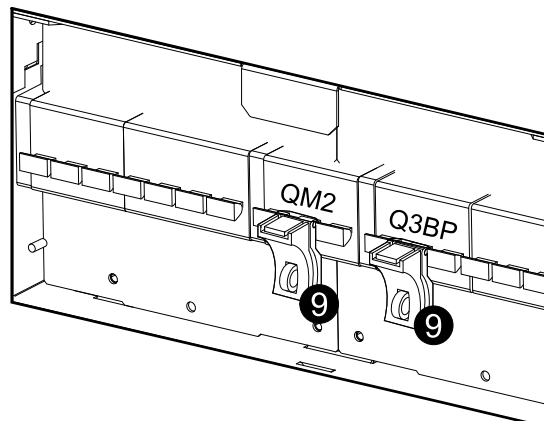


9. Schneider Electric recommends to install a padlock on the static bypass breaker (**QM2**) and the maintenance bypass breaker (**Q3BP**) in the **OFF (opened)** position.

Front View of 3:3 30–40 kVA, and 3:1 20–30 kVA



Front View of 3:3 10–20 kVA, and 3:1 10–15 kVA



Install Backfeed Protection

NOTE: The presence of a backfeed on input mains is mandatory according to IEC 62040-1.

An additional external isolation device must be installed in the UPS system. A magnetic contactor or a circuit breaker with UVR (Under Voltage Release) functionality can be used for this purpose. In the shown examples, the isolation device is a magnetic contactor (marked with a **C1** for single feed configurations and marked with a **C1** and **C2** for dual feed configurations).

The isolation device must be able to carry the UPS input current, check with the relevant input current of the UPS specifications.

NOTE: The 24 V source should be generated from the input source in single mains configurations and from the bypass source in dual mains configurations.

NOTE: The examples shown in the backfeed protection instructions are for TN earthing systems. For other earthing systems, the external isolation device schematics are similar; refer to Galaxy 300 Earthing Manual. In case of an IT earthing system installation, where the upstream protection is a 4 pole device, the external isolation device must also be 4 pole.

Connect the backfeed protection as instructed in *Install External Backfeed Protection*, page 30.

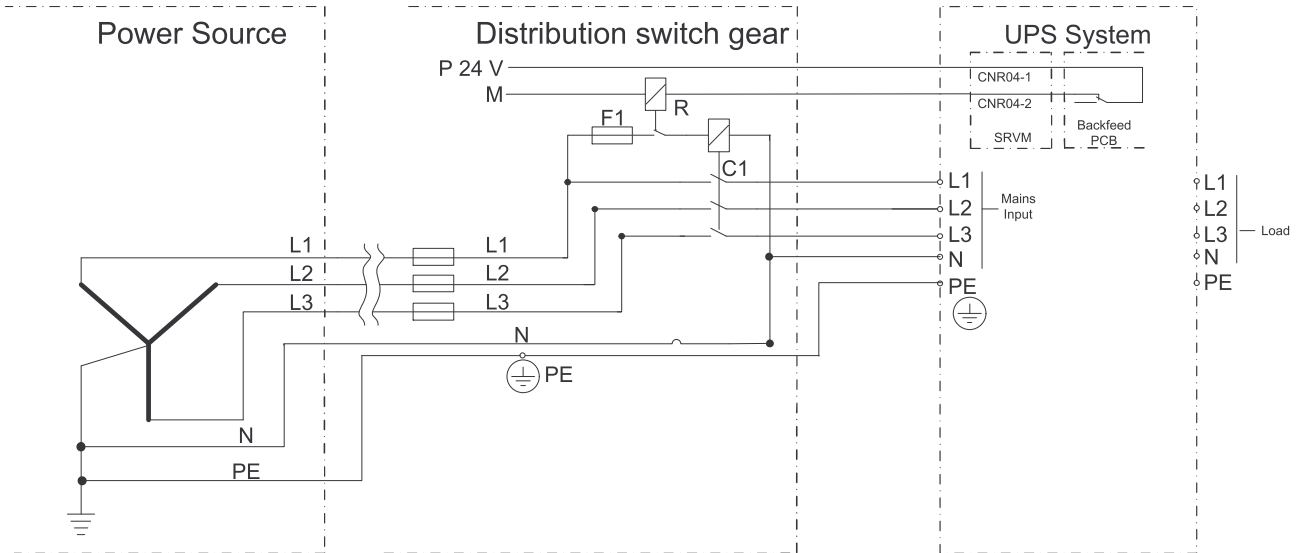
Install External Backfeed Protection

1. Connect UPS backfeed dry contact CNR04-1 with an external +24 VDC supply pole “+” (the UPS backfeed dry contact CNR04-1 CNR04-2 is connected later with the other signal cables).
2. Connect UPS backfeed dry contact CNR04-2 with a terminal of the relay R coil.
3. Connect the other terminal of the relay R coil with +24 VDC supply pole “-”(M).
4. Serial-connect the fuse (F1), the auxiliary contact of relay R and the coil of C1 as shown in the illustration below.
5. Connect C1 (L1, L2, L3) to UPS input (L1, L2, L3) as the shown in the illustration below.
6. Connect C1 (L1, L2, L3) to input feeding (L1, L2, L3) in customer’s distribution switchgear as shown in the illustration below.
7. Connect UPS input (N), PE to input feeding (N), PE in customer’s distribution switchgear.

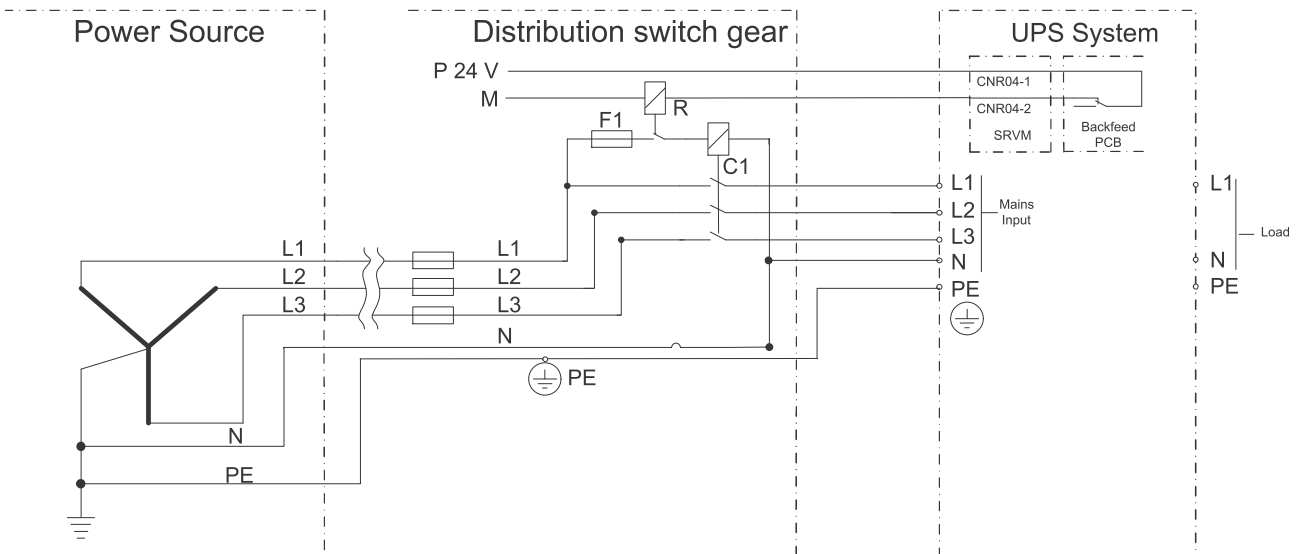
8.

- For 3:3: Connect C1 (L1, L2, L3) with the input feeding (L1, L2, L3) in distribution switchgear as shown in the illustration below.
- For 3:1: Connect C1 (L1, L2, L3) with the input feeding (L1, L2, L3) in distribution switchgear as shown in the illustration below.

3:3 UPS and External Isolation Device



3:1 UPS and External Isolation Device

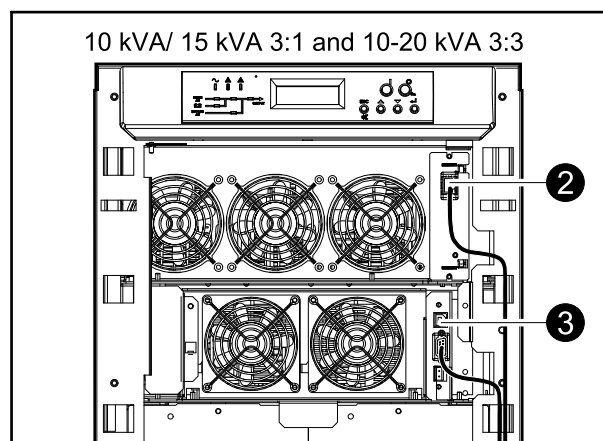
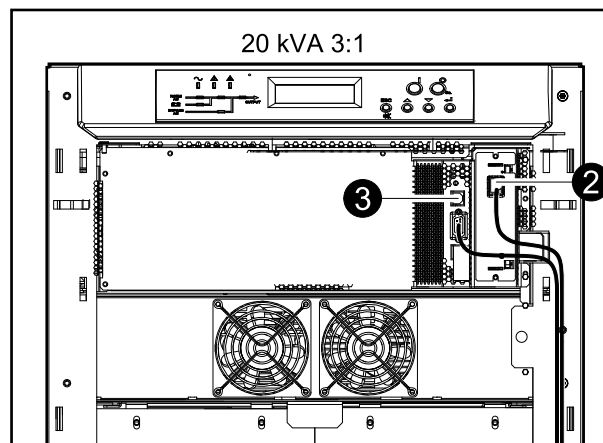
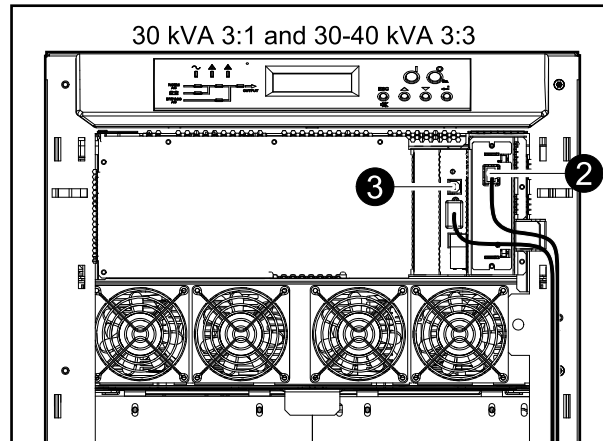


Connect the UPS Signal Cables

Connect the Signal Cables to the UPS

1. Open the front door.
2. Connect the shielded signal cables (optional) to the Network Management Card. Refer to the Network Management Card documentation shipped with the UPS.
3. Connect the UPS backfeed signal CNR04-1 CNR04-2.

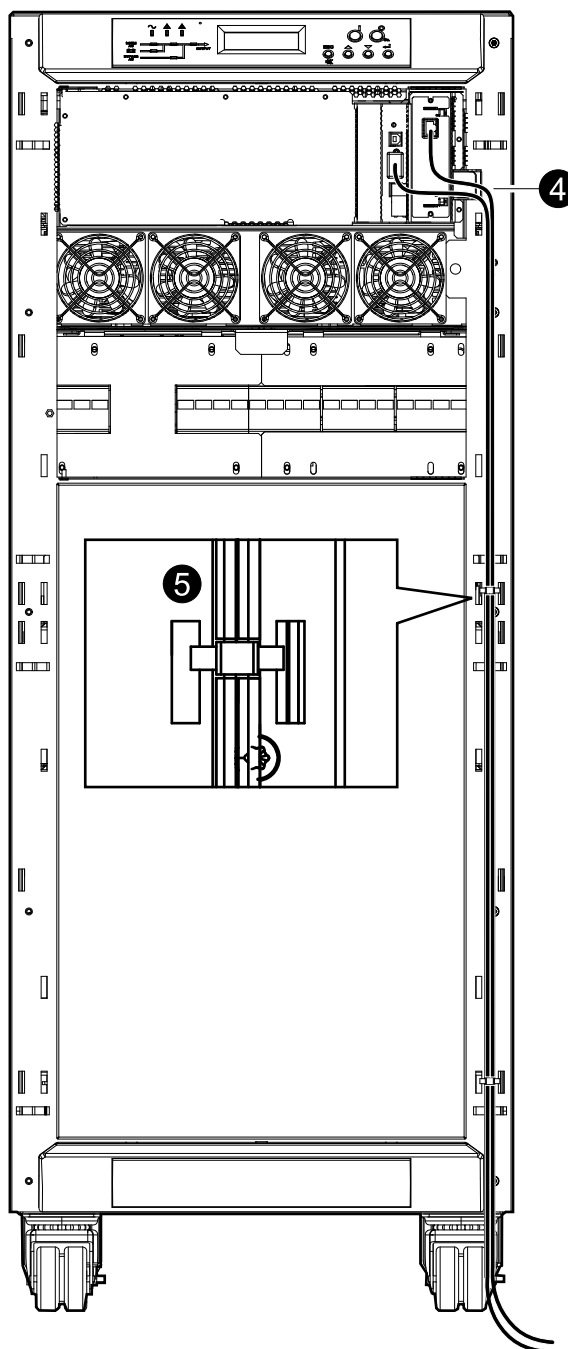
Front View of the UPS



4. Run the cables through the slot (otherwise the door cannot close) and up along the right side of the cabinet.

5. Fasten the cables with cable ties.

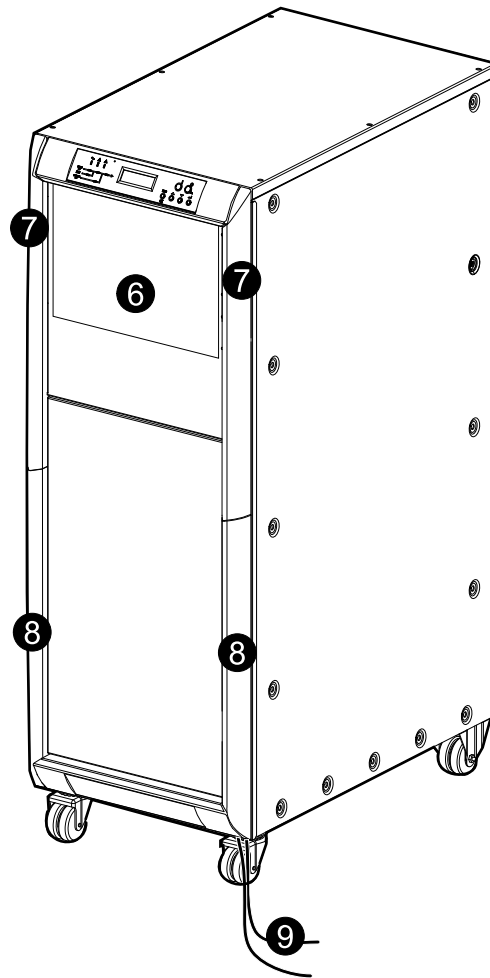
Front View of the UPS



6. Close the upper front door by pushing the door in.
7. Install the two upper side covers with two hands by tipping the covers 10°. Then push down the two clips on the covers (3 mm down) in the rectangular holes on the front panel, and then push in the covers.
8. Install the two bottom side covers in the same way.

9. Connect the cables to your computer interface network.

Front View of the UPS



Connect the EPO Cable to the UPS

⚠ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

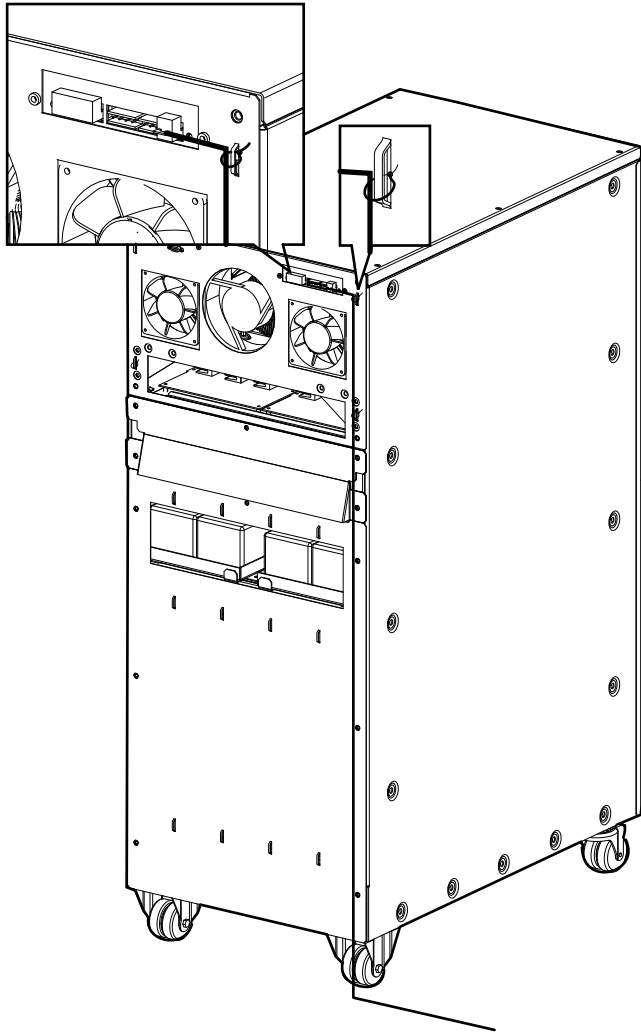
The cables must have a shielded layer, and the shielded layer must be connected to grounding on both the UPS side and the customer side.

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

NOTE: A jumper must be added if no EPO cable is connected.

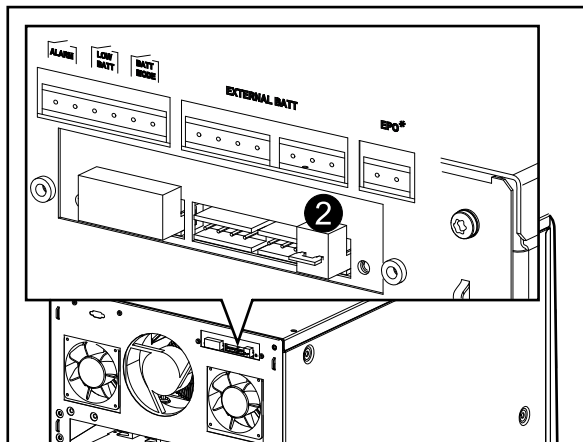
1. Route a shielded EPO cable and optional signal cables.

Rear View of the UPS



2. Connect the Emergency Power Off (EPO) with a shielded cable to the pin (cable not provided). The default connection is closed with two pins.

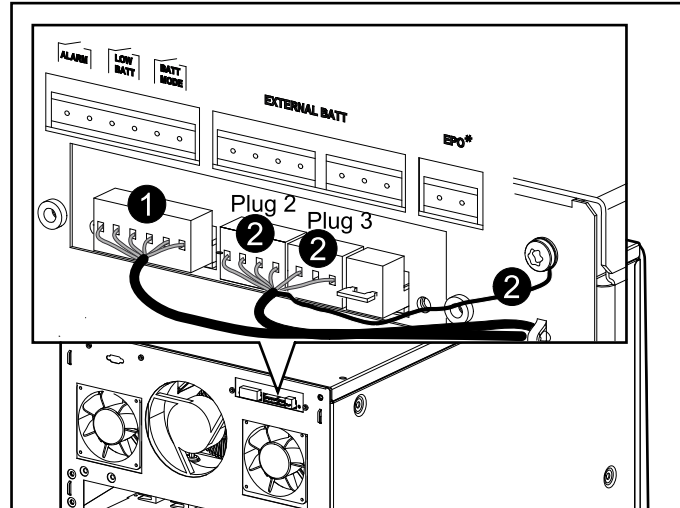
Rear View of the UPS



Connect the Optional Signal Cables

1. Connect the dry connector with a shielded cable (cable not provided). The dry contacts permit to monitor the UPS from external relay switches regarding general alarms, battery mode, and low battery. Run the cables to an indication instrument such as LEDs, etc.

Rear View of the UPS



Requirements for dry connector cables

Permissible voltage (VDC)	30
Permissible current (A)	1
Cable	4 x 0.93 mm ² , ø 6.6 ± 0.3 mm.

2. Connect the cable for the external battery temperature detection and the external battery circuit breaker signal to signal ports 2 and 3.

NOTE: If the battery cabinet (G3HTBAT1) is used, one cable end is preinstalled in this battery cabinet.

Install Battery Solution

⚠ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

- Make sure that the battery breaker is open before starting.
- Check the DC voltages with a DC voltage multimeter versus the battery voltage before continuing.

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

⚠ DANGER

HAZARD OF ELECTRIC SHOCK

The battery cabinet(s) and the UPS must be earthed.

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

⚠ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION OR ARC FLASH

- Servicing of batteries must only be performed or supervised by qualified personnel knowledgeable of batteries and the required precautions. Keep unqualified personnel away from batteries.
- Disconnect charging source prior to connecting or disconnecting battery terminals.
- Turn the battery circuit breakers OFF before connecting cables to the terminals.

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

Depending on your chosen solution, follow the appropriate steps in this chapter. Solutions described:

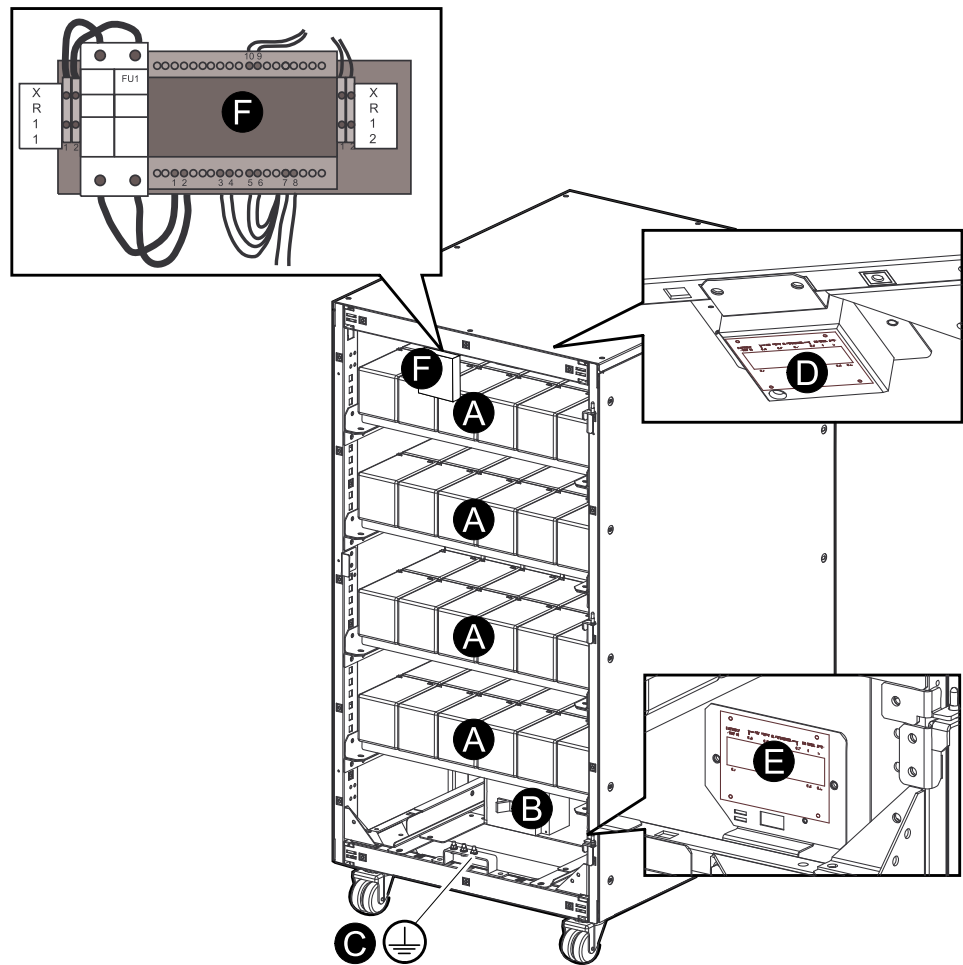
- **Battery cabinet (G3HTBAT1)** – See *Install a Galaxy 300 Battery Cabinet (G3HTBAT1, G3HTBAT2, and G3HTBAT3)*, page 41.
- **Battery cabinet (SYPBV96K160HB, G55TBATL10B and G55TBAT2L7C)** – See *Install a Battery Cabinet (SYPBV96K160HB, G55TBATL10B, and G55TBAT2L7C)*, page 49.

Battery Cabinet Product Overview

Battery Cabinet (G3HTBAT1)

- A. Battery shelves
- B. Battery circuit breaker
- C. Ground cable connection (from the UPS)
- D. Battery temperature sensor (ATIZ)
- E. Connection terminal (for ATIZ, circuit breaker detection and power supply)
- F. Deep discharge electronic card
- G. Battery deep discharge alarm button on battery cabinet front door (not shown in illustration)

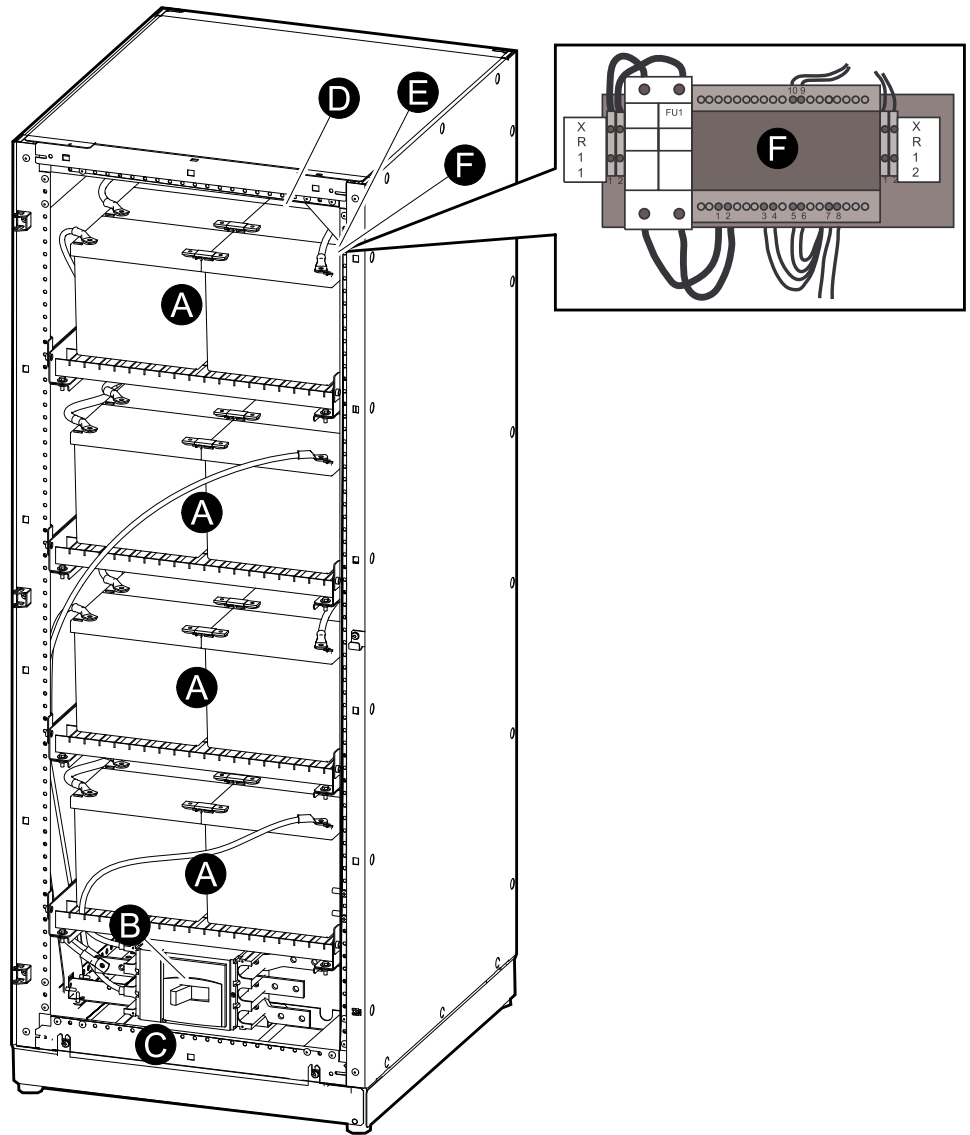
Front View



Battery Cabinet (SYPBV96K160HB, G55TBATL10B and G55TBAT2L7C)

- A. Battery shelves
- B. Battery circuit breaker
- C. Ground cable connection (from the UPS)
- D. Battery temperature sensor (ATIZ board)
- E. Cable terminal board (for ATIZ, circuit breaker detection and power supply)
- F. Deep discharge electronic card
- G. Battery deep discharge alarm button on battery cabinet front door (not shown in illustration)

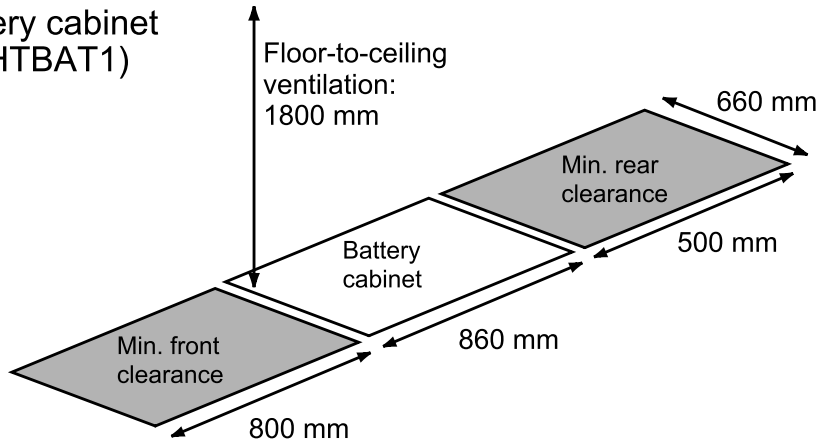
Front View



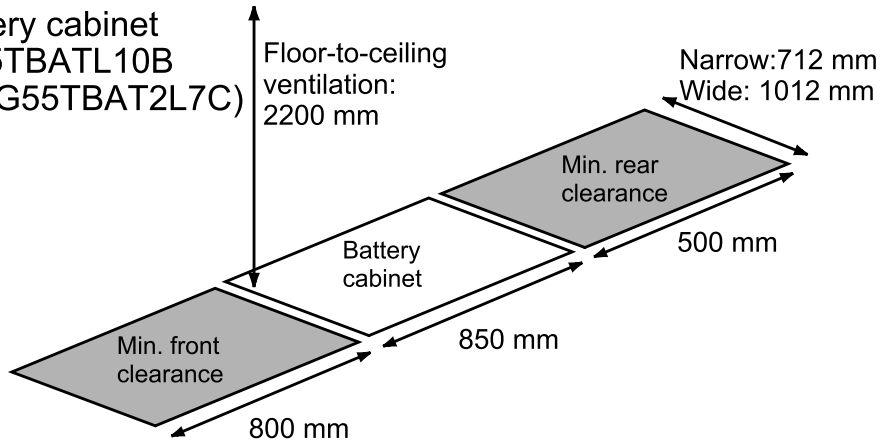
Battery Cabinet Clearance

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.

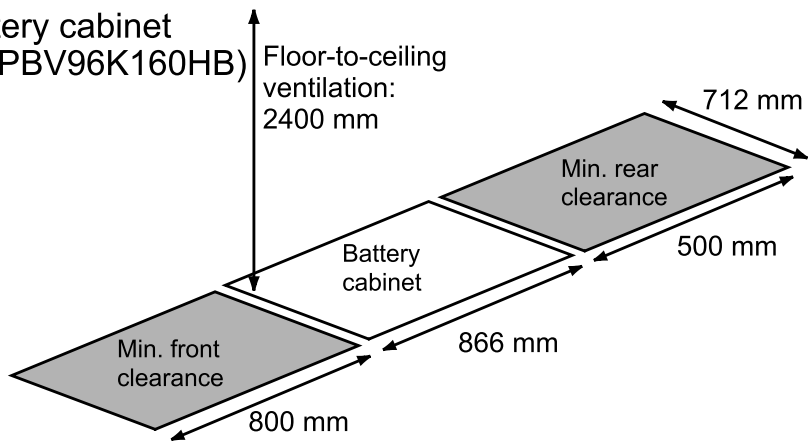
Battery cabinet (G3HTBAT1)



Battery cabinet (G55TBATL10B and G55TBAT2L7C)



Battery cabinet (SYPBV96K160HB)



Install a Galaxy 300 Battery Cabinet (G3HTBAT1, G3HTBAT2, and G3HTBAT3)

NOTE: The following procedure shows installing battery cabinet (G3HTBAT1). Battery options G3HTBAT2 and G3HTBAT3 are installed in the same way as battery option G3HTBAT1, but these options include two battery cabinets instead of just one:

- One battery cabinet with batteries, battery breaker, temperature sensor, and deep discharge alarm indicator, and
- One battery cabinet with only batteries

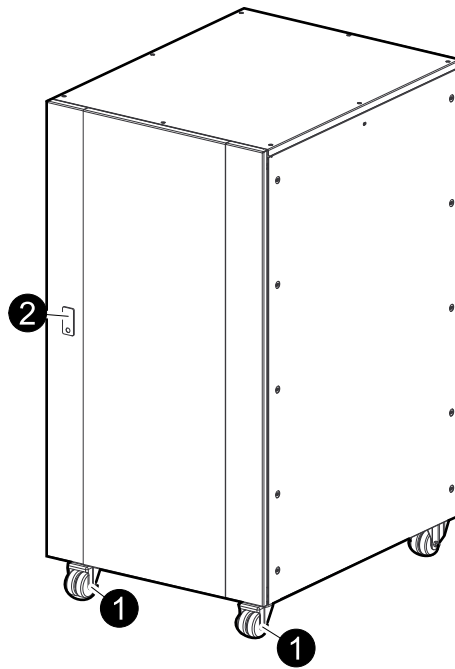
The two battery cabinets are interconnected with power cables (supplied).

Prepare Galaxy 300 Battery Cabinet (1300 mm) for Cables

1. Lock the two front wheels by tightening the screws.
2. Open the unlocked front door.

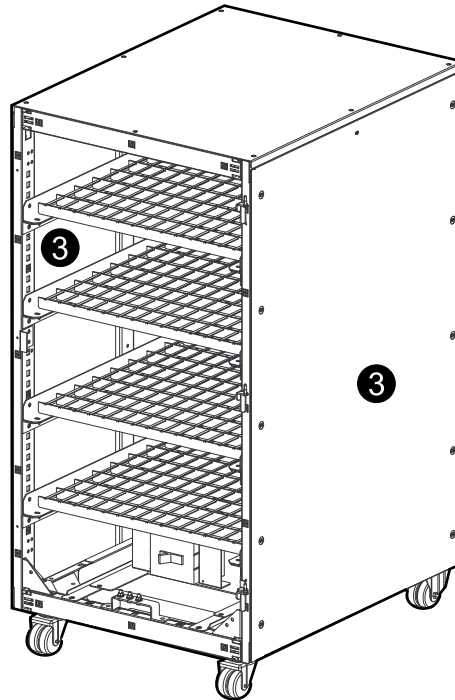
NOTE: The key to the door can be found in the accessories package located in the cabinet.

Front View



3. Remove both side panels.

Front View



Connect Internal Cables in Galaxy 300 Battery Cabinet (1300 mm) with Pre-Installed Batteries

⚠ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

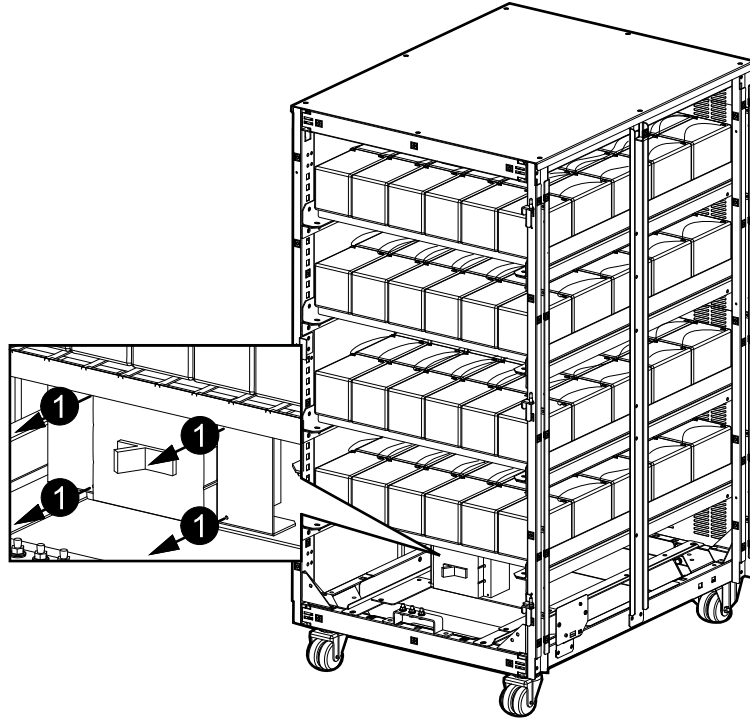
Remove all cardboard pieces, which are used to protect the batteries during transport. Make sure that cables and copper busbars are separated.

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

NOTE: A maximum of two battery cabinets can be connected to the UPS (one battery cabinet with a circuit breaker plus one cabinet without a circuit breaker) by a batch cable between the UPS and the circuit breaker in the battery cabinet.

1. Remove the left and right plastic cover from the battery breaker by removing the four screws (two on each plastic cover).

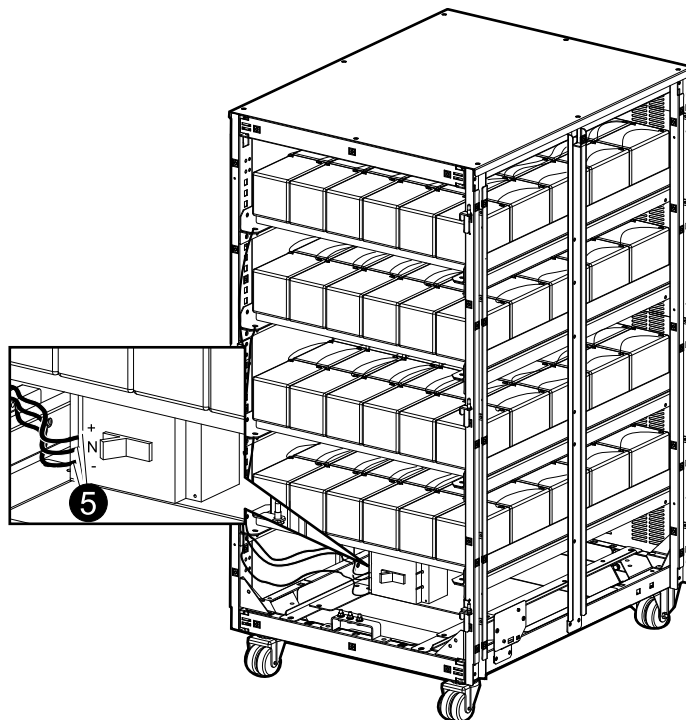
Front View



2. Cut off the belts to remove the carton paper.
3. Run the cables inside each shelf and connect to the batteries.
4. Run the cables between the shelves.
5. Run the cables between the shelves and the circuit breaker.

NOTE: If the cables have more than one terminal, then the unconnected terminals must be isolated with insulation tape before connecting the other terminal.

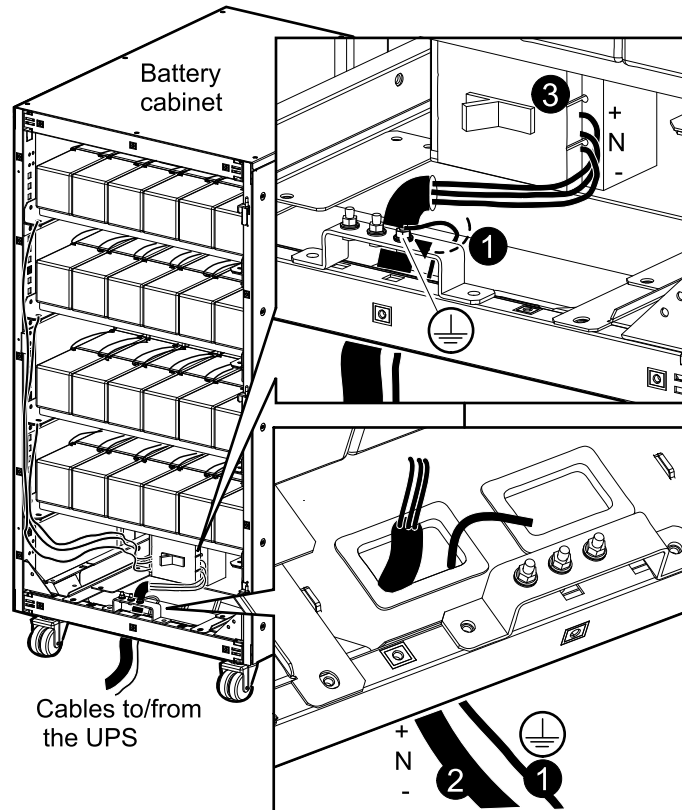
Front View



Connect Battery Cables from UPS to the Galaxy 300 Battery Cabinet (1300 mm)

1. Run the Protective Earth (PE) cable from the UPS up through the bottom front hole of the battery cabinet and connect it to the busbar.
2. Run the battery cables (BAT+, N, and BAT-) from the UPS up through the bottom front hole.
3. Attach the cables to the right side of the battery breaker.
4. Reinstall the side panels.

Front View



Connect External Battery Temperature (ATIZ) and External Battery Breaker Signal between the UPS and the Galaxy 300 Battery Cabinet (1300 mm)

NOTE: The ATIZ cable is for the external battery temperature detection signal (cable is pre-installed).

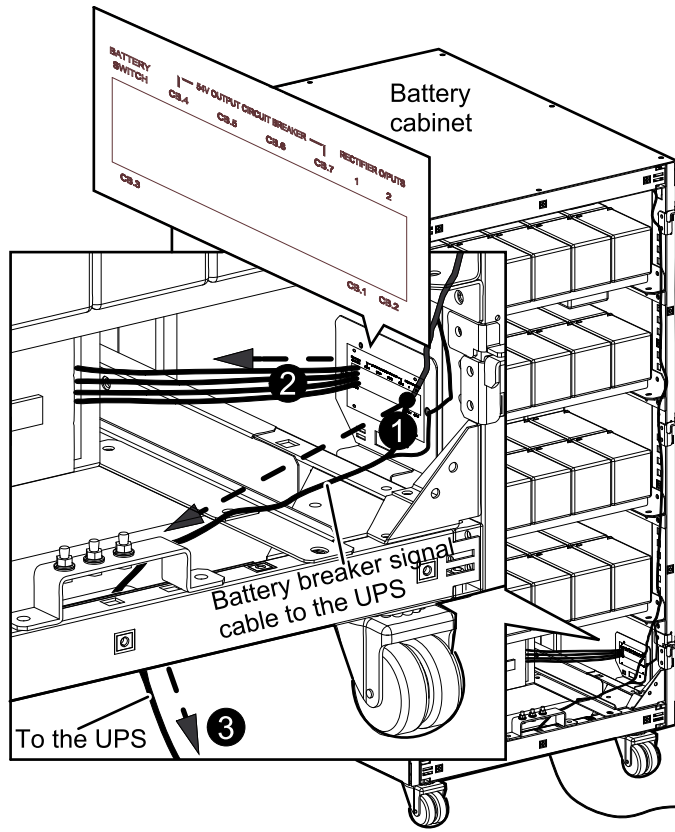
NOTE: The battery cable is for the external battery breaker signal (cable is pre-installed).

NOTE: The connection of signal cables is only applicable between the UPS and battery cabinet 1.

1. Run the combined battery breaker and ATIZ signal cable from the connection terminal on the battery cabinet to the UPS.
2. Run the four cables from the connection terminal to the battery breaker on the battery cabinet (see the below table for cable description).

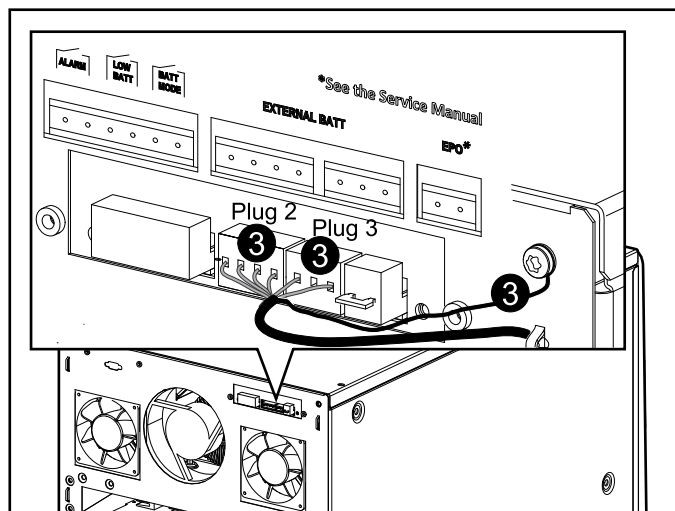
- Connect the combined battery breaker and ATIZ signal cable to the UPS as shown and make sure to connect the cable with shielded layer to the screw on the UPS.

Front View of Battery Cabinet (1300 mm)



Cable description			
Cable color	Cable label	Description	
Yellow	QB OF-11	CB contact signal	– to the auxiliary contact (normally closed)
White	QB OF-14	CB contact signal	
Red	QB OF-D4	+12 V power supply	– to the coil terminal
Black	QB OF-D1	-12 V power supply	

Rear View of the UPS



NOTE: The cable(s) is routed the same way as the EPO cable.

Connect Battery and Signal Cables from the Battery Cabinet (G3HTBAT1) to a Running UPS

NOTE: A maximum of two battery cabinets can be connected to the UPS (one battery cabinet with a circuit breaker plus one cabinet without a circuit breaker) by a cable between the UPS and the circuit breaker in the battery cabinet.

NOTE: Before carrying out the below procedure, make sure that the UPS is running in normal operation with no internal UPS alarms displayed. In normal operation four breakers (**QM1,QFB,QM2,QOP**) must be in the **ON (closed)** position and two breakers (**Q3BP,QB**) must be in the **OFF (open)** position.

1. Turn the UPS into maintenance bypass operation:
 - a. Press the **Inverter OFF** button for three seconds and then turn the input breaker (**QM1**) to the **OFF (open)** position.
 - b. Turn the maintenance bypass breaker (**Q3BP**) to the **ON (closed)** position.
 - c. Turn the static bypass breaker (**QM2**) to the **OFF (open)** position.
 - d. Turn the output breaker (**QOP**) to the **OFF (open)** position.
2. Isolate the batteries by turning the UPS battery cabinet breaker (**QFB**) to the **OFF (open)** position.

⚠ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

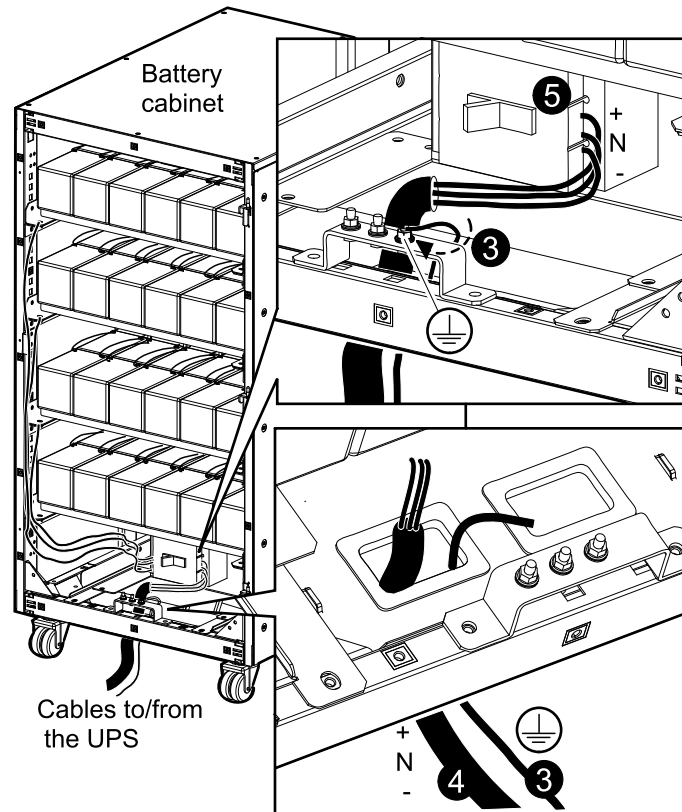
Check the DC voltages with a DC voltage multimeter versus the battery voltage before continuing.

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

3. Run a Protective Earth (PE) cable from the UPS up through the bottom front hole of the battery cabinet and connect it to the busbar.
4. Run the battery cables (BAT+, N, and BAT-) from the UPS up through the bottom front hole.
5. Attach the cables to the right side of the battery breaker.

6. Reinstall the side panels.

Front View of Battery Cabinet (G3HTBAT1)



7. Reinstall the plastic cover and the I/O sheet metal cover removed on the UPS – these covers were removed while preparing the UPS for cables.

! DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

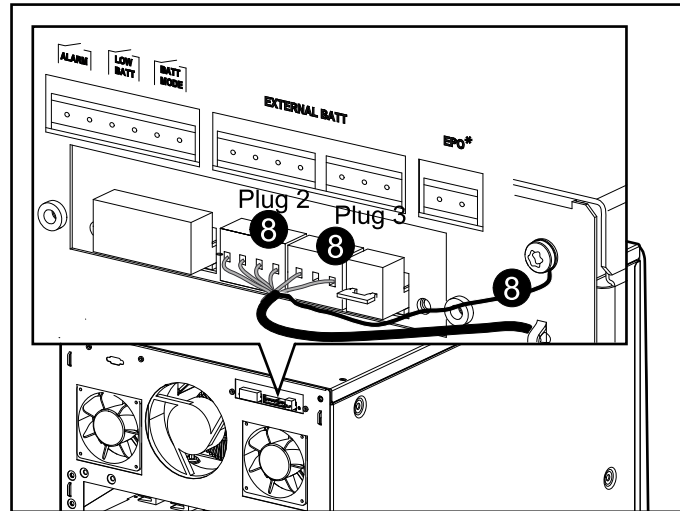
The I/O sheet metal cover must be fixed in the lowest position for safety reasons.

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

8. Connect the combined battery breaker and ATIZ signal cable to the UPS as shown and make sure to connect the cable with shielded layer to the screw on the UPS.

NOTE: See *Connect External Battery Temperature (ATIZ) and External Battery Breaker Signal between the UPS and the Galaxy 300 Battery Cabinet (1300 mm)*, page 44 for information on how to route the cable(s)

Rear View of the UPS



9. Turn the UPS back into normal operation:
 - a. Turn the output breaker (**QOP**) to the **ON (closed)** position.
 - b. Turn the static bypass breaker (**QM2**) to the **ON (closed)** position.
 - c. Wait a minute for the static bypass breaker LED and the output breaker LED to turn green.
 - d. Turn the maintenance bypass breaker (**Q3BP**) to the **OFF (open)** position.
 - e. Turn the battery cabinet breaker (**QFB**) to the **ON (closed)** position.
 - f. Turn the input breaker (**QM1**) to the **ON (closed)** position.
 - g. When the soft start has finished, press the INVERTER ON button.
10. Check the LEDs to see if the UPS is running in normal operation:
 - PFC LED: green
 - INVERTER LED: green
 - LOAD LED: green
 - LOAD PROTECTED LED: green
 - Other LEDs: **OFF**

Install a Battery Cabinet (SYPBV96K160HB, G55TBATL10B, and G55TBAT2L7C)

Remove Battery Protection on Batteries

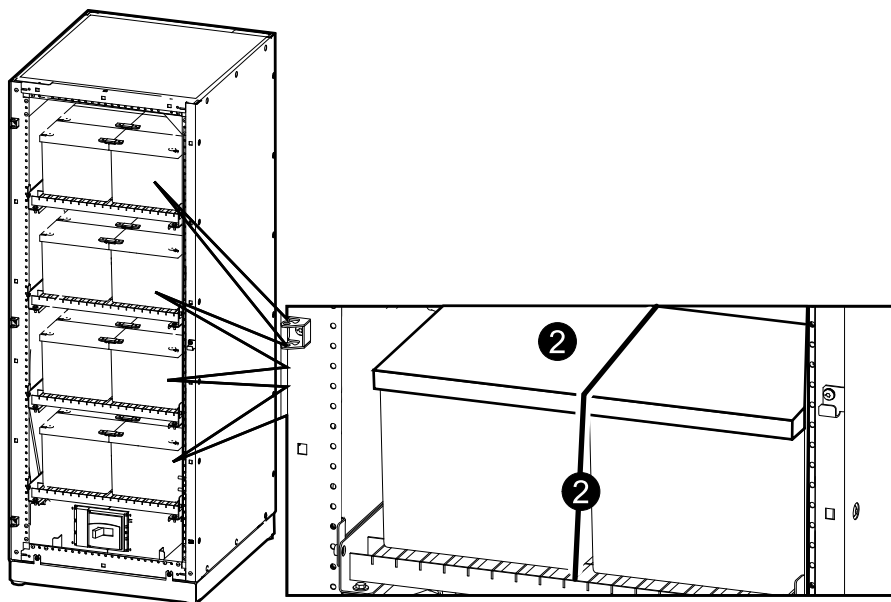
⚠ WARNING

HAZARD OF ELECTRIC SHOCK

Transportation straps and paperboard must be removed from the battery before installation.

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

1. Remove the cable and copper bar kit from the cabinet and save for battery installation.
2. Remove the transportation straps and the paperboard from the batteries.

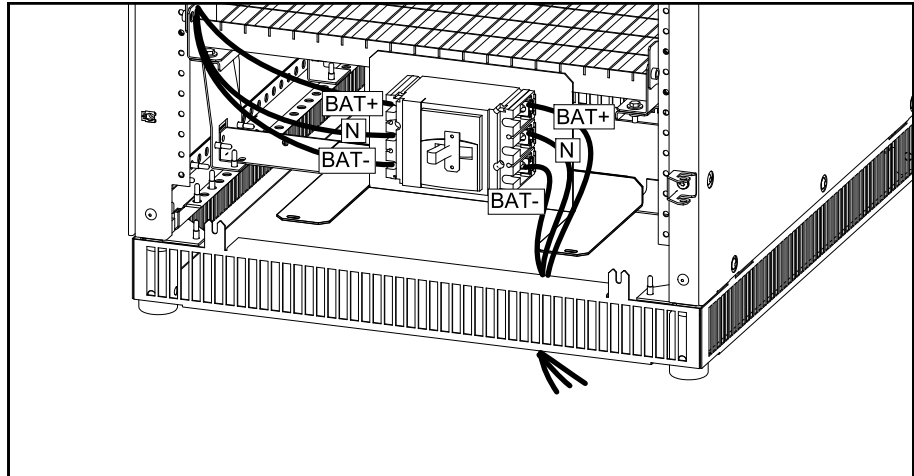


Connect Battery Cables from the UPS to the Battery Cabinet (SYPBV96K160HB, G55TBATL10B, or G55TBAT2L7C)

1. Connect the Protective Earth (PE) cable between the battery cabinet(s) and the UPS.
2. Interconnect the batteries on each shelf.
3. Interconnect all the battery shelves and then connect the battery cables (BAT+, BAT-, N) from the overall battery assembly to the battery circuit breaker in the battery cabinet as shown in the illustration.
4. **If more than one battery cabinet is installed:** Connect the BAT+, BAT-, and N cables (not provided) between the battery cabinets in a daisy chain.

5. Connect the battery cables (BAT+, BAT-, N) from the UPS to the battery circuit breaker in the battery cabinet that will be connected to the UPS.

Front View of the Battery Cabinet



Connect Signal Cables Between the UPS and the Battery Cabinet (SYPBV96K160HB, G55TBATL10B and G55TBAT2L7C)

NOTE: The ATIZ cable is for the external battery temperature detection signal (cable is preinstalled).

NOTE: The battery cable is for the external battery breaker signal (cable is preinstalled).

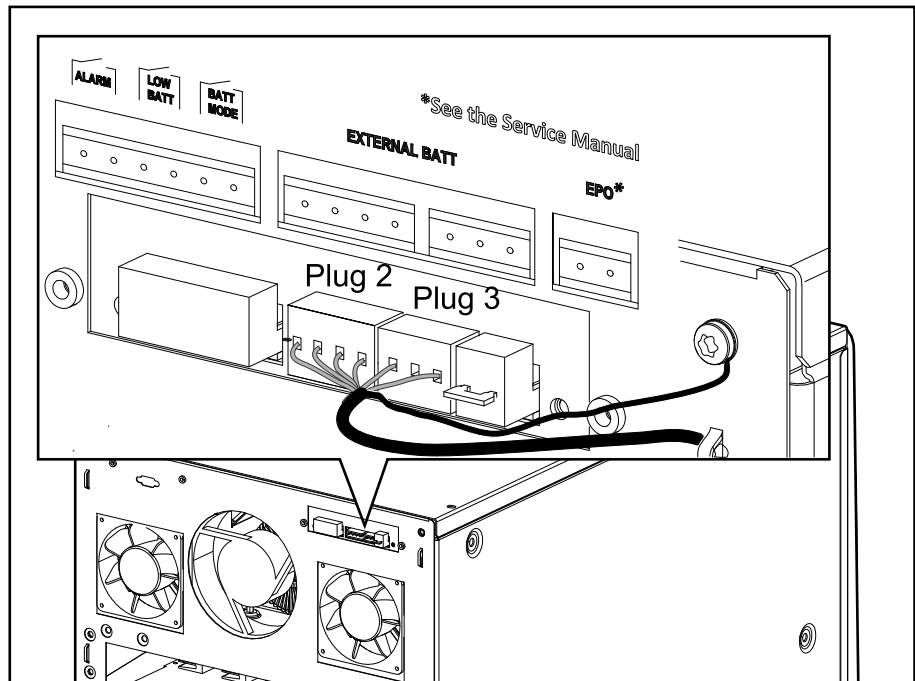
NOTE: The connection of signal cables is only applicable between the UPS and battery cabinet 1.

1. Run the combined battery breaker and ATIZ signal cable from the cable terminal board in the battery cabinet to the UPS.

2. Connect the combined battery breaker and ATIZ signal cable to the UPS as shown and make sure to connect the cable with shielded layer to the screw on the UPS.

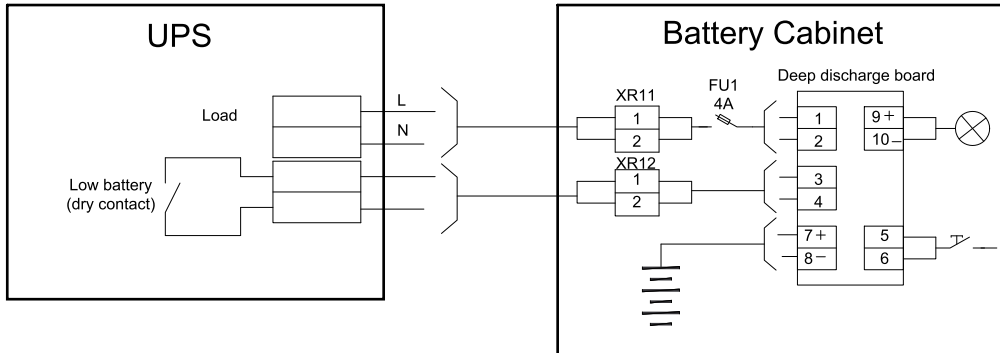
NOTE: The cable(s) is routed the same way as the EPO cable.

Rear View of the UPS



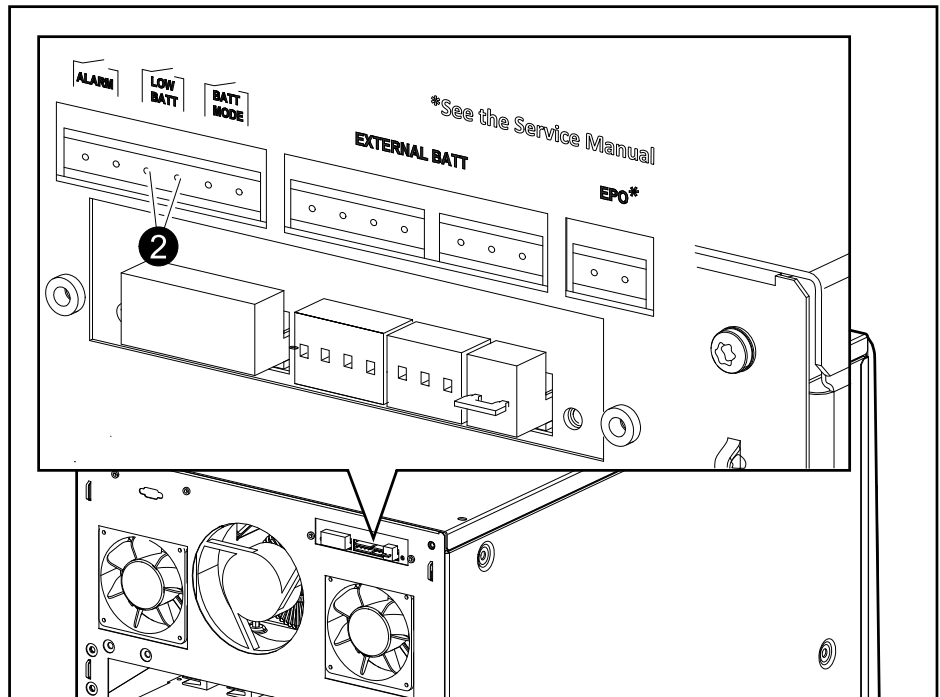
Connect the Deep Discharge Signal Cables Between the Battery Cabinet and the UPS

NOTE: The deep discharge signal cables are connected in the same way on all battery cabinet types. Refer to *Battery Cabinet Product Overview*, page 38 for location of deep discharge board.



1. Connect signal cable from the deep discharge board XR11 terminals in the battery cabinet to the input terminals (L1 and N) in the UPS cabinet.
2. Connect signal cable from the deep discharge board XR12 terminals in the battery cabinet to the dry contact for **LOW BATT** in the rear of the UPS cabinet.

Rear View of the UPS



Checklist after Installation

UPS

- Check that the power wiring is torqued correctly.
- Check that the power wiring (for deep discharge card connections L1 and N) is torqued correctly.
- Check that the auxiliary contact wiring (for deep discharge card) is torqued correctly.
- Verify clockwise phase-rotation (L1, L2, L3) and make sure that a neutral connection is present.
- Leave a wiring diagram on site for service personnel.
- Leave instruction manual for emergency lighting on site for service personnel.
- Reinstall all wiring access panels.
- Make sure that all battery breakers on the UPS unit are in the **OFF (opened)** position.

Battery Solution

- Check that the power wiring is torqued as recommended by the battery vendor.
- If there are two battery cabinets, check that the power cable between two battery cabinets is installed and torqued correctly.
- Check that the power wiring (for deep discharge card connections L1 and N) are torqued correctly.
- Check that the auxiliary contact wiring (for deep discharge card) is torqued correctly.
- Check that the battery voltage wiring (5 blocks of 12 V on deep discharge card) is torqued correctly.
- Verify the polarity of battery cable connection (BAT+, N and BAT-).
- Leave a wiring diagram on site for service personnel.
- Reinstall all wiring access panels.
- Make sure that all battery breakers on the battery solution are in the **OFF (opened)** position.

Schneider Electric
35 rue Joseph Monier
92500 Rueil Malmaison
France

+ 33 (0) 1 41 29 70 00

www.schneider-electric.com

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

© 2015 – 2015 Schneider Electric. All rights reserved.

990-9866-001