# **Galaxy VL**

# Input Transformer Cabinet (600 V In, 480 V Out) and Output Transformer Cabinet (480 V In, 600 V Out)

# Installation

**GVIT300, GVIT500, GVOT300, GVOT500** 

Latest updates are available on the Schneider Electric website 5/2024





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# Important Safety Instructions — SAVE THESE INSTRUCTIONS

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



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



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

#### **ADANGER**

**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.

#### **AWARNING**

**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.

# **ACAUTION**

**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**

#### **AADANGER**

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

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

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

#### **AADANGER**

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

Do not install the product 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.

# **AADANGER**

#### 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.

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

### **AADANGER**

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

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

# **AADANGER**

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

- Install the product in a temperature controlled indoor environment free of conductive contaminants and humidity.
- Install the product 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.

# **AADANGER**

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

The product 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.

## **AADANGER**

#### 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 system.

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

# **AAWARNING**

#### 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.

## **NOTICE**

#### **RISK OF OVERHEATING**

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

Failure to follow these instructions can result in equipment damage.

# **Additional Safety Precautions After Installation**

#### **AADANGER**

#### 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. If additional construction work is needed in the installation room after this product has been installed, turn off the product and cover the product with the protective packaging bag the product was delivered in.

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

# **Electrical Safety**

This manual contains important safety instructions that should be followed during the installation and maintenance of the UPS system.

#### A A DANGER

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

- Electrical equipment must be installed, operated, serviced, and maintained only by qualified personnel.
- Apply appropriate personal protective equipment (PPE) and follow safe electrical work practices.
- Disconnection devices for AC and DC must be provided by others, be readily accessible, and the function of the disconnect device marked for its function.
- 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 system contains an internal energy source. Hazardous voltage can be present even when disconnected from the mains supply. Before installing or servicing the UPS system, ensure that the units are OFF and that mains and batteries are disconnected. Wait five minutes before opening the UPS system to allow the capacitors to discharge.
- The UPS system 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.

# **Surge Protection Device (SPD)**

# **A**CAUTION

#### LOSS OF SURGE SUPPRESSION

- Do not energize the surge protection device until the electrical system is completely installed, inspected, tested, and all conductors have been connected and functional, including the neutral.
- Verify the voltage rating of the device and system before energizing the surge protection device.
- Perform high-potential insulation testing, or any other tests where surge
  protection device components will be subjected to voltages higher than their
  rated turn-on voltage, with the neutral and surge protection device
  disconnected from the power source.

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

## **NOTICE**

- Turn OFF the main electrical supply before installing the surge protection device.
- The surge protection device SSP08EMA12 (GVSOPTSPD) must be installed and connected in each input transformer cabinet before the input transformer cabinet is turned ON.
- The surge protection device must always be part of the circuit.
- The indicators on the surge protection device must show full operational state for the surge protection device.

Failure to follow these instructions can result in equipment damage.

# **Battery Safety**

## **AADANGER**

#### 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.

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# **Specifications**

# **Maximum Short Circuit Rating**

The maximum short circuit withstand rating (Icw) for the input transformer cabinet and the output transformer cabinet is 25 kA RMS symmetrical at 600 V for three cycles.

# Specifications for the Input Transformer Cabinet (UIB) for Input (GVIT300, GVIT500)

UPS rating	200 kW	250 kW	300 kW	350 kW	400 kW	450 kW	500 kW				
Input voltage (V)	600	600									
Connections		wire (L1, L2, L3, N ire (L1, L2, L3, G)									
Nominal input current (A)	199	248	298	348	397	447	497				
Maximum input current (A)	238	298	357	417	477	536	596				
Output voltage (V)	480										
Nominal output current (A)	249	311	373	435	497	559	621				
Maximum output current (A)	298	373	447	522	596	671	746				
Frequency (Hz)	60										

# Specifications for the Input Transformer Cabinet (SSIB) for Bypass (GVIT300, GVIT500)

UPS rating	200 kW	250 kW	300 kW	350 kW	400 kW	450 kW	500 kW		
Input voltage (V)	600								
Connections	4-wire (L1, L2, L	3, N, G)							
Nominal input current (A)	199	248	298	348	397	447	497		
Output voltage (V)	480								
Nominal output current (A)	249	311	373	435	497	559	621		
Frequency (Hz)	60	60							

# **Specifications for the Output Transformer Cabinet (GVOT300, GVOT500)**

UPS rating	200 kW	250 kW	300 kW	350 kW	400 kW	450 kW	500 kW		
Input voltage (V)	480								
Connections	4-wire (L1, L2, L	.3, N, G)							
Nominal input current (A)	241	301	361	421	481	541	601		
Output voltage (V)	600								
Nominal output current (A)	192	241	289	337	385	433	481		
Frequency (Hz)	60	60							

# **Trip Settings**

UPS rating	Breaker type	UIB			SSIB/MBB/UOB		
		Ir	Tr @ 6 Ir	li (x ln)	Ir	Tr @ 6 Ir	li (x ln)
200 kW	PJF36120CU33A	0.4	1	6	0.4	0.5	6
250 kW	PJF36120CU33A	0.4	1	6	0.4	0.5	6
300 kW	PJF36120CU33A	0.4	1	6	0.4	0.5	6
350 kW	PJF36120CU33A	0.5	1	6	0.4	0.5	6
400 kW	PJF36120CU33A	0.5	1	6	0.4	0.5	6
450 kW	PJF36120CU33A	0.6	1	6	0.5	0.5	6
500 kW	PJF36120CU33A	0.7	1	6	0.5	0.5	6

# **Recommended Upstream Protection**

**NOTE:** Mandatory overcurrent protection is to be provided by others and marked with its function.

**NOTE:** The recommended breakers below are 100% rated.

# **AADANGER**

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

- Circuit breakers must have instantaneous trip time of maximum 50 ms.
- Circuit breakers must have instantaneous override values set according to the table below.

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

Schneider Electric reserves the right to remove the Live Swap label from the product front if the conditions are not met.

#### **ACAUTION**

#### **HAZARD OF FIRE**

- · Connect only to a circuit with the below specifications.
- Connect to a circuit provided with a 1200 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.

UPS rating	200 kW		250 kW		300 kW		
	Input Bypass		Input	Bypass	Input	Bypass	
Breaker type	LJF36400CU31X	LJF36250CU31X	LJF36400CU31X	LJF36400CU31X	PJF36060CU31A	LJF36400CU31X	
Ir	300	200	350	250	400	300	
tr	≥4	≥4	≥4	≥4	≥4	≥4	
li (x ln)	≤12	≤12	≤12	≤12	≤12	≤12	

UPS rating	350 kW		400 kW		
	Input Bypass In		Input	Bypass	
Breaker type	PJF36060CU31A	PJF36060CU31A	PJF36080CU31A	PJF36060CU31A	
lr	450	350	500	400	
tr	≥4	≥4	≥4	≥4	
li (x ln)	≤10	≤12	≤10	≤12	

UPS rating	450 kW		500 kW		
	Input Bypass In		Input	Bypass	
Breaker type	PJF36060CU31A	PJF36060CU31A	PJF36080CU31A	PJF36080CU31A	
Ir	600	450	650	500	
tr	≥4	≥4	≥4	≥4	
li (x ln)	≤8	≤10	≤8	≤10	

## **Recommended Cable Sizes**

# **AADANGER**

#### 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 500 kcmil.
- Shrink sleeve must be fitted over cable lug crimped zone and must overlap with the cable insulation on all power cables.

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

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

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 (EGC) are sized in accordance with the minimum requirements in NEC Article 250.122 and Table 250.122.

**NOTE:** 100% rated circuit breakers for UIB, UOB, MBB, SSIB. 100% rated breakers for battery breakers.

#### Copper

UPS rating	200 kW	250 kW	300 kW	350 kW	400 kW	450 kW	500 kW
Voltage (V)	600	600	600	600	600	600	600
Input phases (AWG/ kcmil)	1 x 300	2 x 3/0	2 x 4/0	2 x 225	2 x 300	2 x 350	2 x 400
Input EGC (AWG/ kcmil)	1 x 3	2 x 3	2 x 2	2 x 1	2 x 1/0	2 x 1/0	2 x 1/0
Bypass/output phases (AWG/kcmil)	1 x 250	1 x 300	2 x 2/0	2 x 3/0	2 x 4/0	2 x 250	2 x 300
Bypass EGC/output EGC (AWG/kcmil)	1 x 4	1 x 3	2 x 3	2 x 2	2 x 2	2 x 1	2 x 1/0
DC+/DC- (AWG/ kcmil)	2 x 300	2 x 400	3 x 350	3 x 400	4 x 350	4 x 400	4 x 500
DC EGC (AWG/ kcmil)	2 x 1	2 x 1/0	3 x 2/0	3 x 2/0	4 x 3/0	4 x 4/0	4 x 4/0
Inverter midpoint cable for 3-wire parallel (AWG/kcmil)	1 x 300	2 x 3/0	2 x 4/0	2 x 225	2 x 300	2 x 350	2 x 400

#### **Aluminum**

UPS rating	200 kW	250 kW	300 kW	350 kW	400 kW	450 kW	500 kW
Voltage (V)	600	600	600	600	600	600	600
Input phases (AWG/kcmil)	1 x 500	2 x 4/0	2 x 300	2 x 350	2 x 400	2 x 500	3 x 300
Input EGC (AWG/ kcmil)	1 x 1	2 x 1	2 x 1/0	2 x 2/0	2 x 3/0	2 x 3/0	3 x 3/0
Bypass/output phases (AWG/kcmil)	1 x 300	1 x 400	2 x 4/0	2 x 250	2 x 300	2 x 350	2 x 400
Bypass EGC/output EGC (AWG/kcmil)	1 x 2	1x1	2 x 1	2 x 1/0	2 x 1/0	2 x 2/0	2 x 3/0

#### **Aluminum (Continued)**

UPS rating	200 kW	250 kW	300 kW	350 kW	400 kW	450 kW	500 kW
Voltage (V)	600	600	600	600	600	600	600
DC+/DC- (AWG/ kcmil)	2 x 500	3 x 300	3 x 500	4 x 350	4 x 500	5 x 400	5 x 500
DC EGC (AWG/ kcmil)	1 x 2/0	3 x 3/0	3 x 4/0	4 x 4/0	4 x 250	5 x 350	5 x 350
Inverter midpoint cable for 3-wire parallel (AWG/kcmil)	1 x 500	2 x 4/0	2 x 300	2 x 350	2 x 400	3 x 300	3 x 300

# **Recommended Bolt and Lug Sizes for UL**

# **NOTICE**

#### **RISK OF EQUIPMENT DAMAGE**

Use only UL approved compression cable lugs.

Failure to follow these instructions can result in equipment damage.

#### Copper

Cable size	Bolt size	Cable lug type (one hole)	Cable lug type (two hole NEMA)	Crimping tool	Die
1/0 AWG	M10x35mm	LCB1/0-12-X	LCC1/0-12-X	CT-930	CD-920-1/0 Pink P42
2/0 AWG	M10x35mm	LCB2/0-12-X	LCC2/0-12-X	CT-930	CD-920-2/0 Black P45
3/0 AWG	M10x35mm	LCB3/0-12-X	LCC3/0-12-X	CT-930	CD-920-3/0 Orange P50
4/0 AWG	M10x35mm	LCB4/0-12-X	LCC4/0-12-X	CT-930	CD-920-4/0 Purple P54
250 kcmil	M10x35mm	LCB250-12-X	LCC250-12-X	CT-930	CD-920-250 Yellow P62
300 kcmil	M10x35mm	LCB300-12-X	LCC300-12-X	CT-930	CD-920-300 Red P66
350 kcmil	M10x35mm	LCB350-12-X	LCC350-12-X	CT-930	CD-920-350 Red P71
400 kcmil	M10x35mm	LCB400-12-X	LCC400-12-6	CT-930	CD-920-400 Blue P76
450 kcmil	M10x35mm	_	LCC450-12-6	CT-930	_
500 kcmil	M10x35mm	LCB500-12-X	LCC500-12-6	CT-930	CD-920-500 Blue P87

#### **Aluminum**

Cable size	Bolt size	Cable lug type (one hole)	Cable lug type (two hole NEMA)	Crimping tool	Die
1/0 AWG	M10x35mm	LAA1/0-12-5	LAB1/0-12-X	CT-930	CD-920-1/0 Pink P42
2/0 AWG	M10x35mm	LAA2/0-12-5	LAB2/0-12-5	CT-930	CD-920-2/0 Black P45
3/0 AWG	M10x35mm	LAA3/0-12-5	LAB3/0-12-5	CT-930	CD-920-3/0 Orange P50
4/0 AWG	M10x35mm	LAA4/0-12-5	LAB4/0-12-5R	CT-930	CD-920-4/0 Purple P54
250 kcmil	M10x35mm	LAA250-12-5	LAB250-12-5	CT-930	CD-920-250 Yellow P62
300 kcmil	M10x35mm	LAA300-12-2	LAB300-12-2	CT-930	CD-920-300 Red P66
350 kcmil	M10x35mm	LAA350-12-2	LAB350-12-2R	CT-930	CD-920-350 Red P71
400 kcmil	M10x35mm	_	LAB400-12-2	CT-930	CD-920-400 Blue P76
500 kcmil	M10x35mm	LAA500-12-2	LAB500-12-2R	CT-930	CD-920-500 Blue P87

# **Torque Specifications**

Bolt size	Torque
M6	5 Nm (3.69 lb-ft / 44.3 lb-in)
M8	17.5 Nm (12.91 lb-ft / 154.9 lb-in)
M10	30 Nm (22 lb-ft / 194.7 lb-in)
M12	50 Nm (36.87 lb-ft / 442.5 lb-in)

# **Input and Output Transformer Cabinet Weights and Dimensions**

Commercial reference	Weight kg (lbs)	Height mm (in)	Width mm (in)	Depth mm (in)
GVIT300 with surge protection device SSP08EMA12 (GVSOPTSPD) installed	640 (1411)	1970 (77.55)	800 (31.49)	847 (33.34)
GVIT500 with surge protection device SSP08EMA12 (GVSOPTSPD) installed	795 (1753)	1970 (77.55)	800 (31.49)	847 (33.34)
GVOT300	602 (1327)	1970 (77.55)	800 (31.49)	847 (33.34)
GVOT500	767 (1691)	1970 (77.55)	800 (31.49)	847 (33.34)

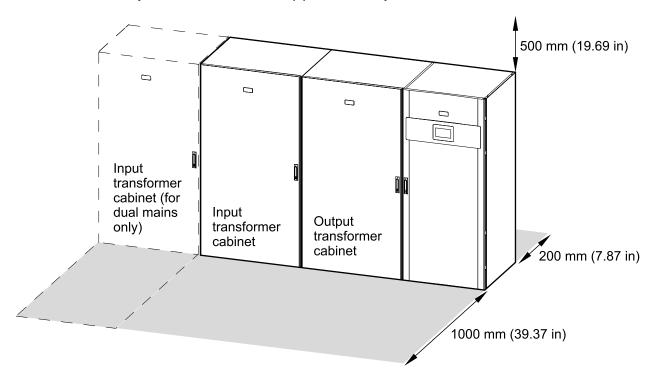
## **Clearance**

The single mains system consists of one input transformer cabinet (UIB), one output transformer cabinet (MBB/UOB), and the UPS.

The dual mains system consists of two input transformer cabinets (UIB and SSIB), one output transformer cabinet (MBB/UOB), and the UPS.

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

#### Front View of the Input Transformer Cabinet(s) and the Output Transformer Cabinet and the UPS



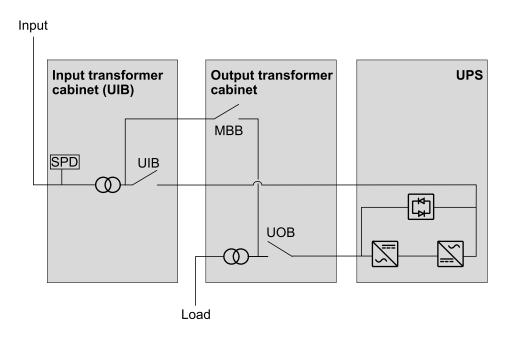
## **Environment**

	Operating	Storage	
Temperature	0 °C to 40 °C (32 °F to 104 °F )	-25 °C to 55 °C (-13 °F to 131 °F)	
Relative humidity	5-95% non-condensing	10-80% non-condensing	
Elevation	0-3000 m (0-10000 feet) Derating required from 1000-3000 m (1640-10000 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		
Protection class	IP20		
Color RAL 9003, gloss level 85%			

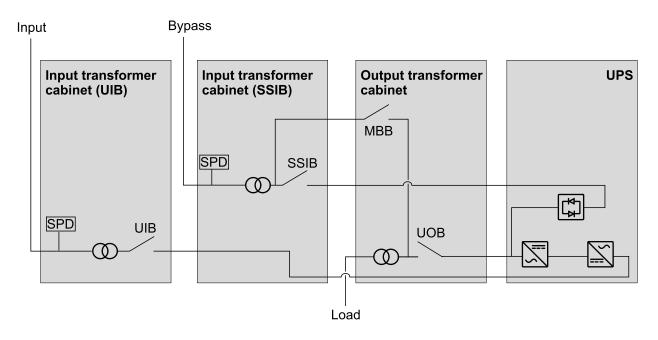
# **System Overview**

UIB	Unit input breaker
SSIB	Static switch input breaker
MBB	Maintenance bypass breaker
UOB	Unit output breaker

# **Single Mains UPS System**



# **Dual Mains UPS System**

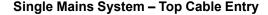


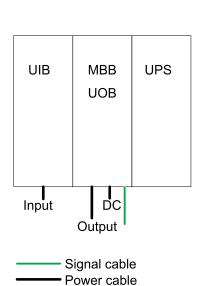
# **Installation Procedure for Single Mains UPS System**

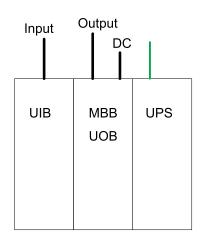
The single mains system consists of one input transformer cabinet (UIB), one output transformer cabinet (MBB/UOB), and the UPS.

NOTE: The UIB kit GVLOPT009 is required for a single mains system.

#### Single Mains System – Bottom Cable Entry







- 1. Install the Seismic Anchoring (Option), page 23.
- Prepare the Transformer Cabinets for Installation, page 25.
- 3. Install the Surge Protection Device SSP08EMA12 (GVSOPTSPD), page 30.
- 4. Position and Interconnect the Transformer Cabinets and the UPS, page 32.
- 5. Install the Busbars Between the Transformer Cabinets in a Single Mains System, page 37.
- 6. Prepare the UPS for Internal Busbar Connection, page 43.
- Install the Busbars Between the UPS and the Output Transformer Cabinet in a Single Mains System, page 48.
- 8. Install Busbars for Load Bank Breaker (Option), page 53.
- 9. Connect the Power Cables in a Single Mains System, page 54.
- 10. Perform one of the following procedures:
  - For top cable entry systems: Prepare for Signal Cables in Top Cable Entry Systems, page 58, or
  - For bottom cable entry systems: Prepare for Signal Cables in Bottom Cable Entry Systems, page 59.
- 11. Connect the Signal Cables Between the Transformer Cabinets and the UPS in a Single Mains System, page 61.
- Follow the UPS installation manual and other auxiliary product installation manuals to connect relevant signal cables and external communication cables in the UPS.
- 13. Add Translated Safety Labels to Your Product, page 66.

14. Final Installation, page 67.

For moving or decommissioning the transformer cabinets after installation has been completed, please see Decommission or Move the Transformer Cabinets to a New Location, page 69.

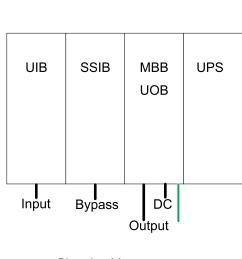
# **Installation Procedure for Dual Mains UPS System**

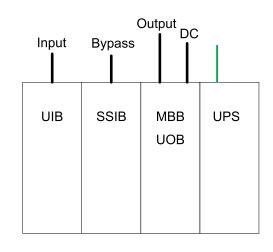
The dual mains system consists of two input transformer cabinets (UIB and SSIB), one output transformer cabinet (MBB/UOB), and the UPS.

**NOTE:** The UIB kit GVLOPT009 and the SSIB kit GVLOPT010 are required for a dual mains system.

#### **Dual Mains System – Bottom Cable Entry**

#### **Dual Mains System - Top Cable Entry**





Signal cable
Power cable

- 1. Install the Seismic Anchoring (Option), page 23.
- 2. Prepare the Transformer Cabinets for Installation, page 25.
- 3. Install the Surge Protection Device SSP08EMA12 (GVSOPTSPD), page 30.
- 4. Position and Interconnect the Transformer Cabinets and the UPS, page 32.
- 5. Install the Busbars Between the Transformer Cabinets in a Dual Mains System, page 40.
- 6. Prepare the UPS for Internal Busbar Connection, page 43.
- 7. Install the Busbars Between the UPS and the Output Transformer Cabinet in a Dual Mains System, page 50.
- 8. Install Busbars for Load Bank Breaker (Option), page 53.
- 9. Connect the Power Cables in a Dual Mains System, page 56.
- 10. Perform one of the following procedures:
  - For top cable entry systems: Prepare for Signal Cables in Top Cable Entry Systems, page 58, or
  - For bottom cable entry systems: Prepare for Signal Cables in Bottom Cable Entry Systems, page 59.
- 11. Connect the Signal Cables Between the Transformer Cabinets and the UPS in a Dual Mains System, page 63.
- 12. Follow the UPS installation manual and other auxiliary product installation manuals to connect relevant signal cables and external communication cables in the UPS.

- 13. Add Translated Safety Labels to Your Product, page 66.
- 14. Final Installation, page 67.

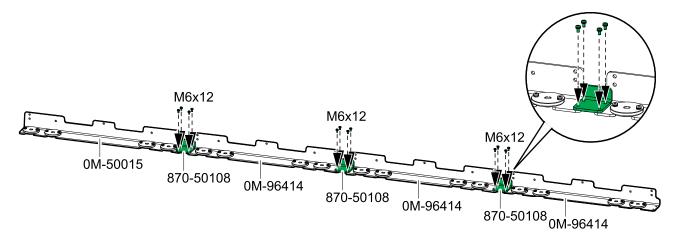
For moving or decommissioning the transformer cabinets after installation has been completed, please see Decommission or Move the Transformer Cabinets to a New Location, page 69.

# **Install the Seismic Anchoring (Option)**

Use the optional seismic kit GVLOPT002 (for the UPS) and GVLOPT008 (for the transformer cabinets) for this procedure.

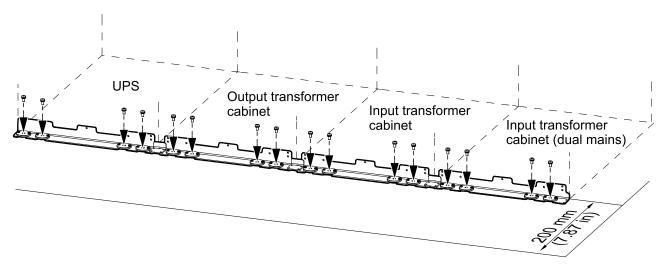
1. Connect the rear anchoring assemblies for the UPS and the transformer cabinets with the interconnection plates.

#### **Rear View**



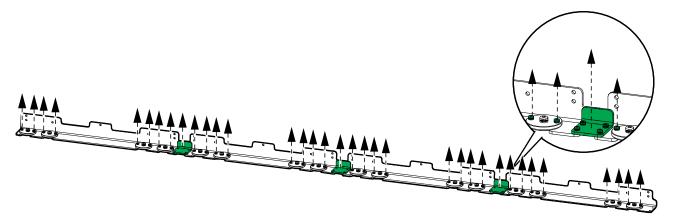
2. Mount the rear anchoring assembly to the floor. Use appropriate hardware for the floor type – the hole diameter in the rear anchors is ø16 mm. Minimum requirement is M12 strength grade 8.8 hardware.

#### **Rear View**



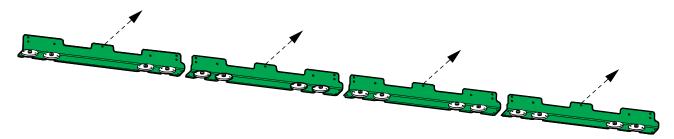
3. Remove the M6 screws and the interconnection plates.

#### **Rear View**



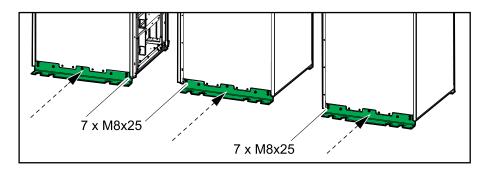
4. Remove the rear anchoring brackets.

#### **Rear View**



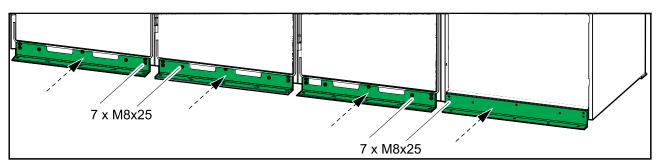
5. Install the rear anchoring brackets on the UPS and the transformer cabinets with the provided bolts.

#### Rear View of the UPS and the Transformer Cabinets



6. Install the front anchoring brackets on the UPS and the transformer cabinets with the provided bolts.

#### Front View of the Transformer Cabinets and the UPS



# **Prepare the Transformer Cabinets for Installation**

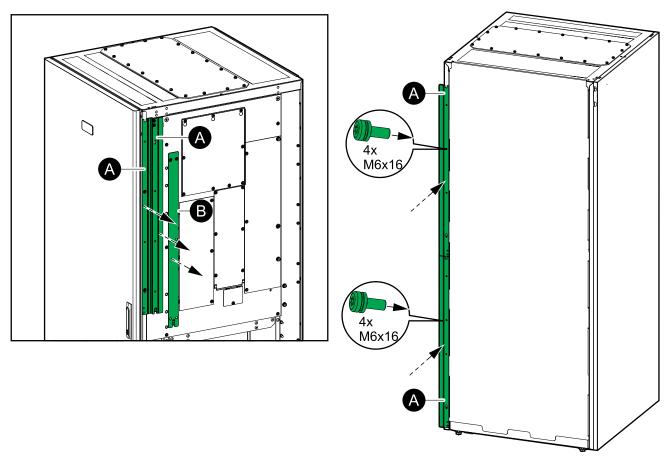
The single mains system consists of one input transformer cabinet (UIB), one output transformer cabinet (MBB/UOB), and the UPS.

The dual mains system consists of two input transformer cabinets (UIB and SSIB), one output transformer cabinet (MBB/UOB), and the UPS.

1. Remove the brackets (A) and (B) from the transformer cabinets. Install the brackets (A) on the rear of the transformer cabinets. Save the bracket (B) for top interconnection.

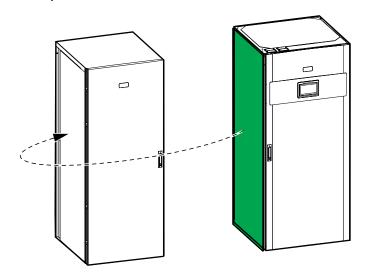
**Right Side View of the Transformer Cabinets** 

#### **Rear View of the Transformer Cabinets**



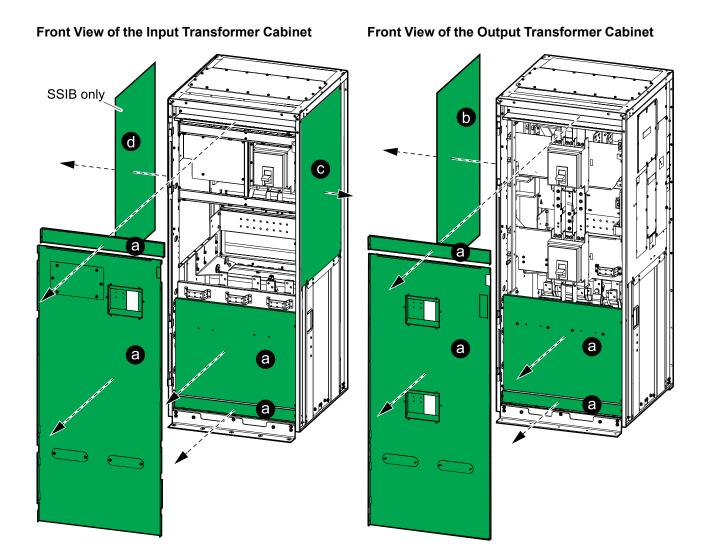
2. Remove the left side panel from the UPS. Install the left side panel on the leftmost input transformer cabinet.

#### The Input Transformer Cabinet and the UPS



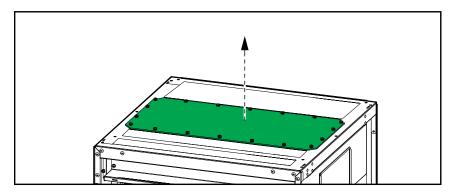
#### 3. Perform the following:

- a. Remove the three front plates, and the transparent plate from the transformer cabinets.
- b. Remove the upper left side plate from the output transformer cabinet.
- c. Remove the upper right side plate from the input transformer cabinet(s).
- d. **Only for dual mains system**: Remove the upper left side plate from the input transformer cabinet (SSIB). Do not remove the upper left side plate from the input transformer cabinet (UIB).



- 4. For top cable entry:
  - a. Remove the top gland plate from the transformer cabinets.

#### **Top Cable Entry on the Transformer Cabinets**



- b. Drill or punch holes for power cables or conduits in the gland plate. Conduits are not provided.
- c. Reinstall the top gland plate on the transformer cabinets.

#### **AADANGER**

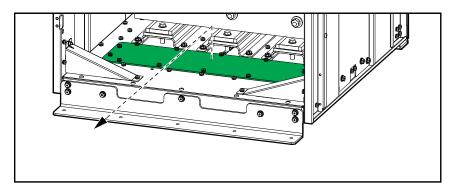
#### HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

Do not drill or punch holes with the gland plates installed and do not drill or punch holes in close proximity to the cabinet.

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

- 5. For bottom cable entry:
  - a. Remove the bottom gland plate from the transformer cabinets.

#### **Bottom Cable Entry on the Transformer Cabinets**



- b. Drill or punch holes for power cables or conduits in the gland plate. Conduits are not provided.
- c. Reinstall the bottom gland plate on the transformer cabinets.

#### **AADANGER**

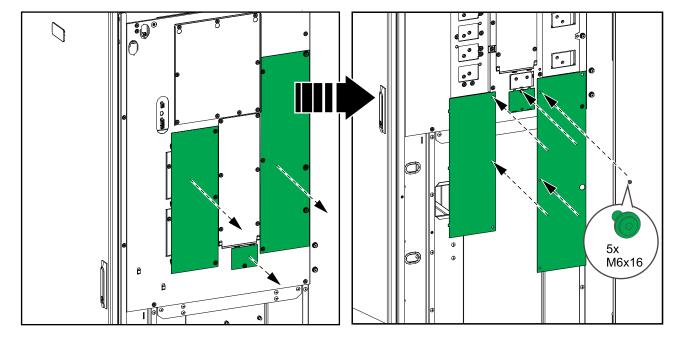
#### HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

Do not drill or punch holes with the gland plates installed and do not drill or punch holes in close proximity to the cabinet.

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

6. **On the output transformer cabinet**: Reposition the protection covers on the right side panel. Reuse the M6 screws.

#### **Right Side View of the Output Transformer Cabinet**

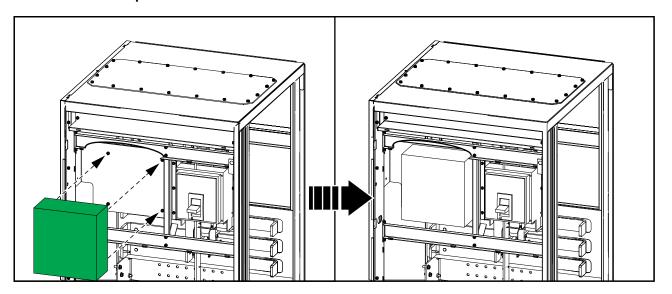


# Install the Surge Protection Device SSP08EMA12 (GVSOPTSPD)

A surge protection device SSP08EMA12 (GVSOPTSPD) must be installed in each of the input transformer cabinets in the system. The surge protection device SSP08EMA12 (GVSOPTSPD) is shipped separately.

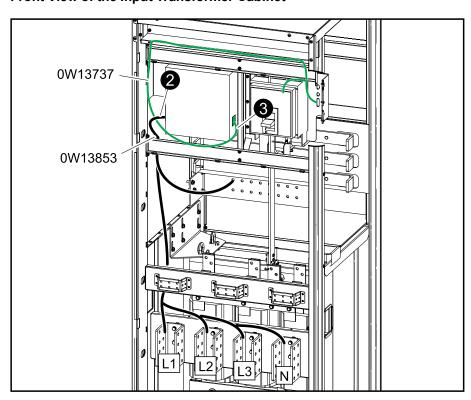
1. Install the surge protection device SSP08EMA12 (GVSOPTSPD) on the preinstalled screws and washers on the mounting bracket in the input transformer cabinet(s).

#### **Front View of the Input Transformer Cabinet**



2. Route the preinstalled power cables 0W13853 to the surge protection device (L1, L2, L3, N, G). Follow the installation manual provided with the surge protection device to connect the power cables.

#### **Front View of the Input Transformer Cabinet**



3. Route the preinstalled signal cable 0W13737 to the surge protection device. Follow the installation manual provided with the surge protection device to connect the signal cable.

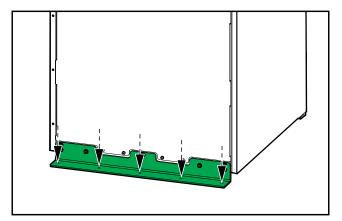
# Position and Interconnect the Transformer Cabinets and the UPS

 Push the input transformer cabinet (UIB) into final position (leftmost position).
 Align with seismic anchoring, if present. For systems without seismic
 anchoring, reinstall the rear transportation bracket on the input transformer
 cabinet and mount it to the floor.

#### **Rear View with Seismic Anchoring**

# 

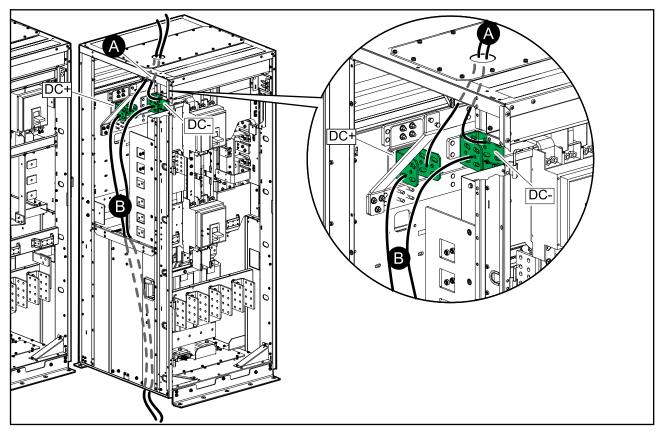
#### **Rear View without Seismic Anchoring**



- Only for dual mains system: Push the second input transformer cabinet (SSIB) into final position on the right side of the first input transformer cabinet (UIB). Align with seismic anchoring, if present. For systems without seismic anchoring, reinstall the rear transportation bracket on the input transformer cabinet and mount it to the floor.
- 3. Position the output transformer cabinet close to the input transformer cabinet (s), but do not push it into the row.

4. Route the DC cables through the top (A) or bottom (B) into the output transformer cabinet. Connect the DC cables to the DC busbars.

#### Front Left View of the Input Transformer Cabinet and the Output Transformer Cabinet



- 5. Push the output transformer cabinet into final position on the right side of the input transformer cabinet(s). Keep attention on the DC cables while pushing the UPS into position so the DC cables are not damaged or disconnected. Align with seismic anchoring, if present.
- 6. **Only for systems without seismic anchoring**: Reinstall the rear transportation bracket on the output transformer cabinet and mount it to the floor.
- 7. Push the UPS into final position on the right side of the output transformer cabinet. Align with seismic anchoring, if present.
- 8. Lower the front and rear leveling feet on all the cabinets with a wrench until they connect with the floor. The casters must not have contact with the floor. Use a bubble-leveler to check that the cabinets are level.

# **NOTICE**

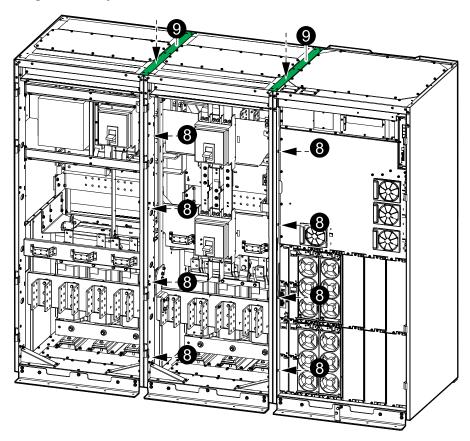
#### **RISK OF EQUIPMENT DAMAGE**

Do not move the cabinet after the leveling feet have been lowered.

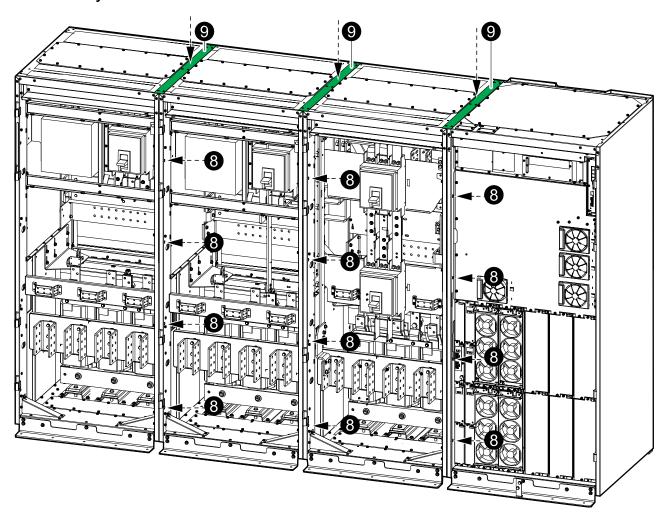
Failure to follow these instructions can result in equipment damage.

9. Interconnect all the cabinets in the front with screws as shown.

#### Single Mains System



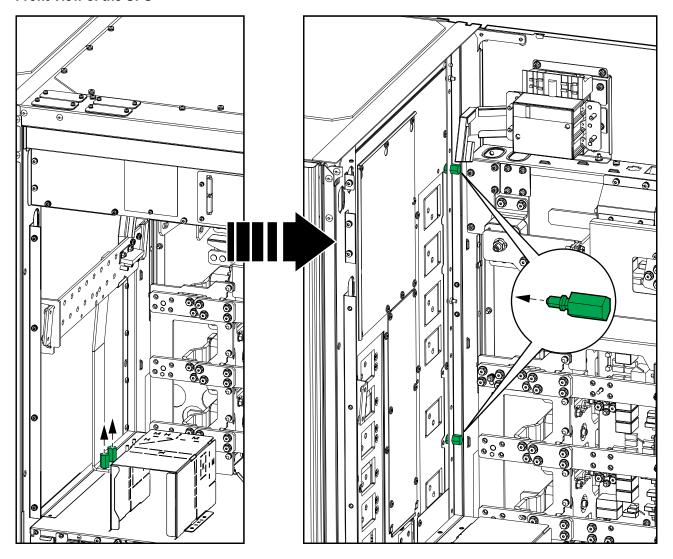
#### **Dual Mains System**



- 10. Install the top brackets between all the cabinets. The top bracket was removed from the side of the transformer cabinets earlier.
- 11. Open the inner door in the UPS.

12. Remove the two special screws from the UPS and use them for rear interconnection between the output transformer cabinet and the UPS as shown.

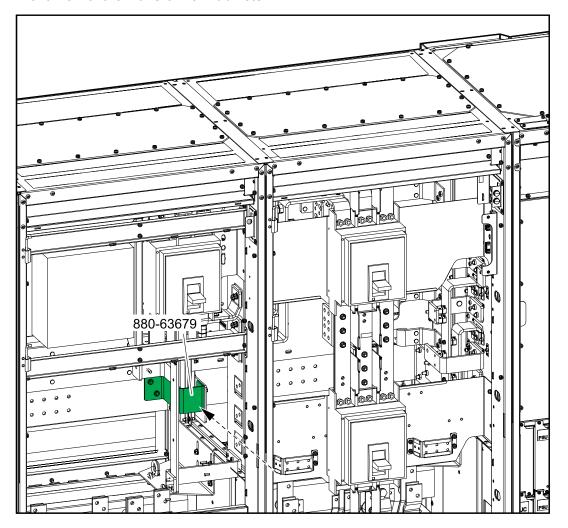
#### Front View of the UPS



# **Install the Busbars Between the Transformer Cabinets in a Single Mains System**

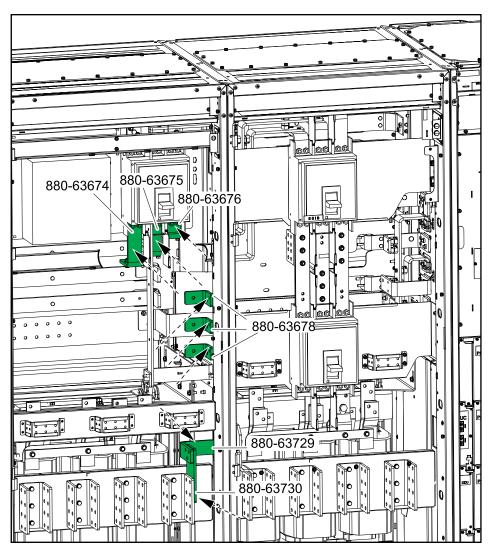
1. Install the busbar 880-63679 between the transformer cabinets.

### **Front View of the Transformer Cabinets**



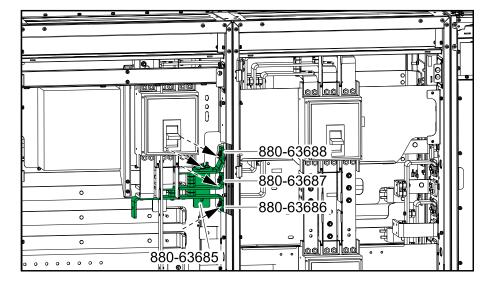
2. Install busbar 880-63674, busbar 880-63675, and busbar 880-63676 on the UIB breaker in the input transformer cabinet. Install three busbars 880-63678 in the side of the input transformer cabinet. Install the busbar 880-63729 and busbar 880-63730 between the input transformer cabinet and the output transformer cabinet.

# Front View of the Input Transformer Cabinet, the Output Transformer Cabinet and the UPS



3. Install busbar 880-63686, busbar 880-63687, and busbars 880-63688 between the UIB breaker and terminals in the right side of the input transformer cabinet. Install busbar 880-63685 on 880-63688 as shown.

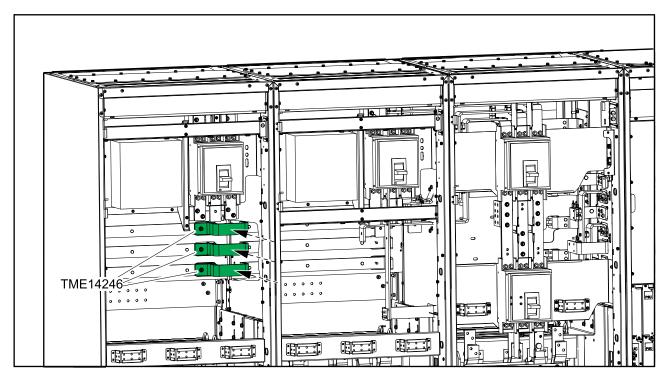
# Front View of the Input Transformer Cabinet, the Output Transformer Cabinet and the UPS



# **Install the Busbars Between the Transformer Cabinets in a Dual Mains System**

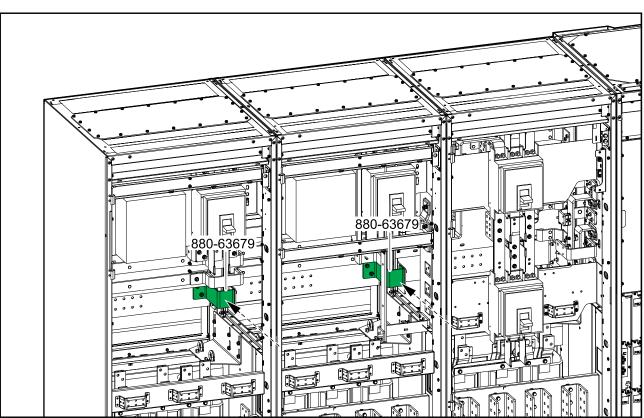
1. Install three interconnection busbars TME14246 between the input transformer cabinet (UIB) and the input transformer cabinet (SSIB).

## Front View of the Transformer Cabinets and the UPS



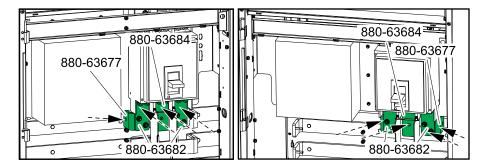
2. Install two busbars 880-63679 between the transformer cabinets.

## **Front View of the Transformer Cabinets**



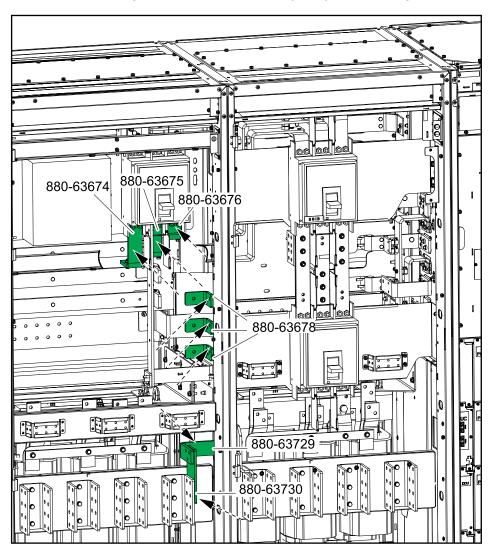
3. Install two busbars 880-63682, busbar 880-63684, and two busbars 880-63677 on the UIB breaker in the input transformer cabinet (UIB).

## Front View of the Input Transformer Cabinet (UIB)



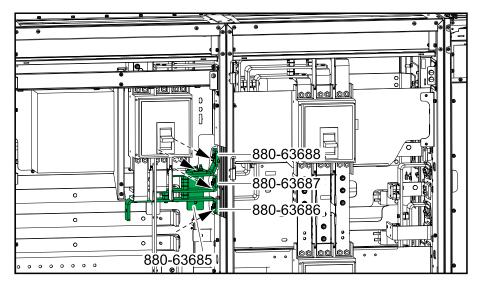
4. Install busbar 880-63674, busbar 880-63675, and busbar 880-63676 on the SSIB breaker in the input transformer cabinet (SSIB). Install three busbars 880-63678 in the side of the input transformer cabinet (SSIB). Install the busbar 880-63729 and busbar 880-63730 between the input transformer cabinet (SSIB) and the output transformer cabinet.

# Front View of the Input Transformer Cabinet (SSIB) and the Output Transformer Cabinet and the UPS



5. Install busbar 880-63686, busbar 880-63687, and busbars 880-63688 between the SSIB breaker and terminals in the right side of the input transformer cabinet (SSIB). Install busbar 880-63685 on 880-63688 as shown.

# Front View of the Input Transformer Cabinet (SSIB) and the Output Transformer Cabinet and the UPS



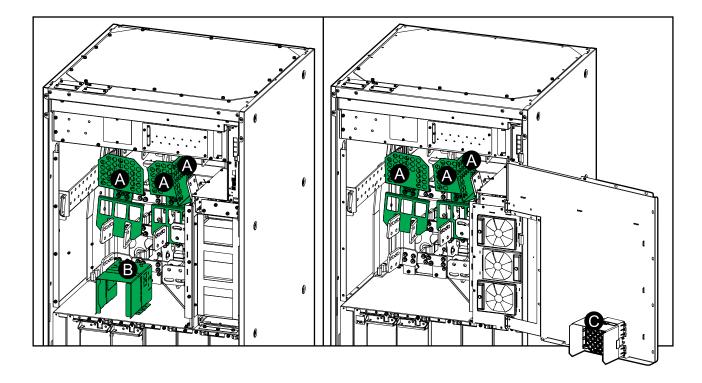
# **Prepare the UPS for Internal Busbar Connection**

 Remove the transparent protection covers (marked (A) on the illustration) from the UPS.

**NOTE:** On older UPS models, the plastic box (marked (B) on the illustration) is present on the shelf and will need modification described in later instructions. On newer UPS models, the box (marked (C) on the illustration) is integrated in the inner door of the UPS instead of being a separate part. The integrated box must not be removed from the inner door. The integrated box does not need modification.

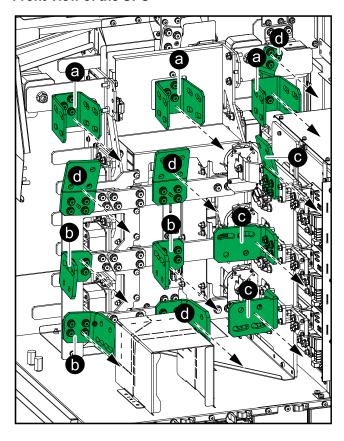
Front View of the UPS Model with Separate Plastic Box

Front View of the UPS Model with the Box Integrated in the Inner Door



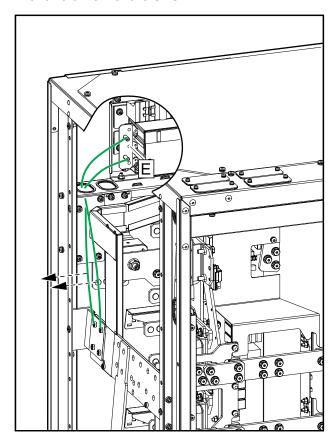
2. Remove the busbars from the UPS. Save the busbars marked (c) for load bank breaker (LBB) option if this is part of the system. Discard the busbars marked (a), (b) and (d).

# Front View of the UPS

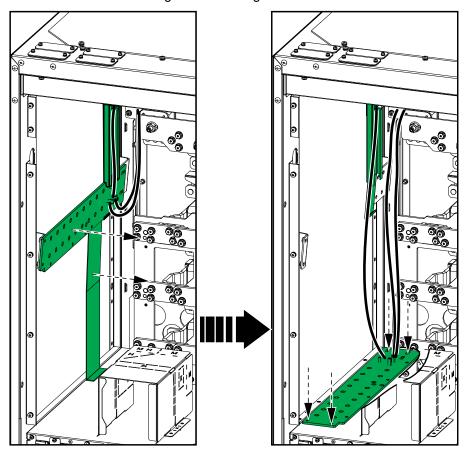


3. **Only for HRG earthing system**: Disconnect and discard the two cables that connect the E terminal on the bonding contactor to the ground busbar.

## Front Left View of the UPS

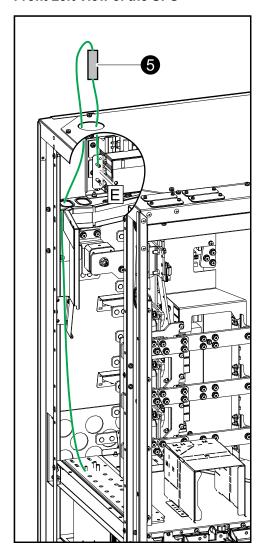


- 4. Reposition the ground busbar in the UPS:
  - a. Disconnect the EMC cable, the EMC cable holder, and the bonding cables from the ground busbar. Note the connection of the cables on the ground busbar.
  - b. Remove and discard the copper busbar.
  - c. Move the ground busbar to the new position.
  - d. Hold onto the EMC cable holder and pull gently on the end of the EMC cable to extend the length. Reconnect the EMC cable to the ground busbar.
  - e. Reconnect the bonding cables to the ground busbar.

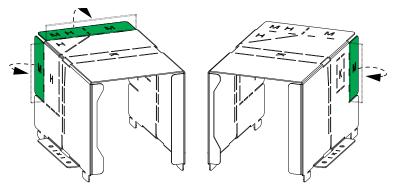


5. **Only for HRG earthing system**: Connect an external impedance between the E terminal on the bonding contactor and the ground busbar according to NEC 2014 article 250.36.

### Front Left View of the UPS



6. Only for UPS with the plastic box as a separate part: Bend the M zone flaps upwards on the plastic box. This is necessary to make room for the internal busbars between the output transformer cabinet and the UPS. Skip this step if the box is integrated in the inner door of the UPS. The integrated box does not need modification to fit with the internal busbars.

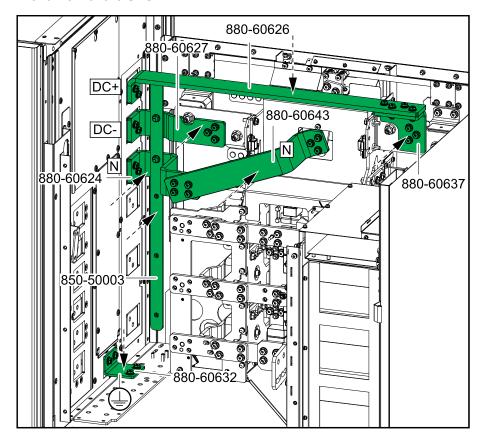


# Install the Busbars Between the UPS and the Output Transformer Cabinet in a Single Mains System

The busbars and insulator parts are provided in a kit with the output transformer cabinet. The part numbers shown on the illustrations are printed on the parts. Use the provided M8x30 screws and torque to 17.5 Nm (12.91 lb-ft / 154.9 lb-in).

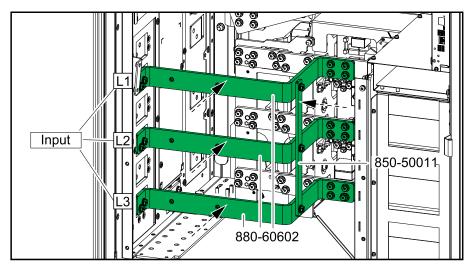
1. Install the neutral busbars, the DC busbars, the insulator part, and the ground busbar.

#### Front View of the UPS



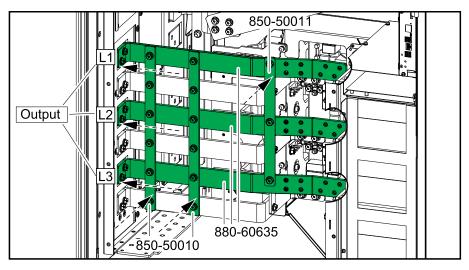
2. Install the input busbars and the insulator part.

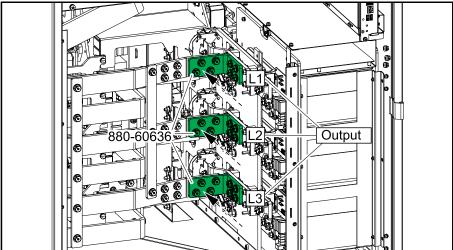
# Front View of the UPS



3. Install the output busbars and the insulator parts.

# Front View of the UPS





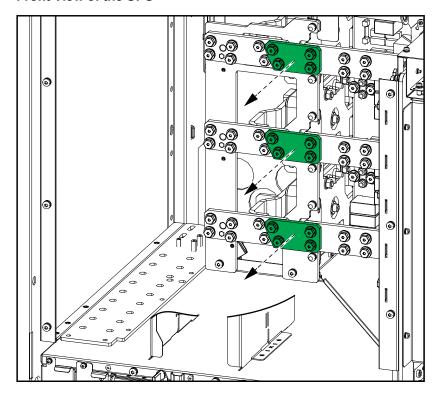
# Install the Busbars Between the UPS and the Output Transformer Cabinet in a Dual Mains System

The busbars and insulator parts are provided in a kit with the output transformer cabinet. The part numbers shown on the illustrations are printed on the parts. Use the provided M8x30 screws and torque to 17.5 Nm (12.91 lb-ft / 154.9 lb-in).

1. Remove the three single mains busbars.

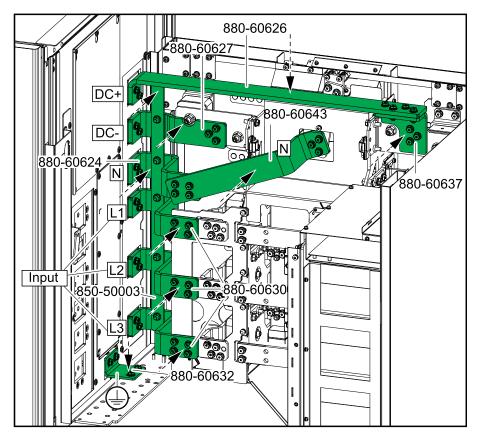
**NOTE:** Save the three single mains busbars. They are needed for testing during start-up of the UPS.

#### Front View of the UPS



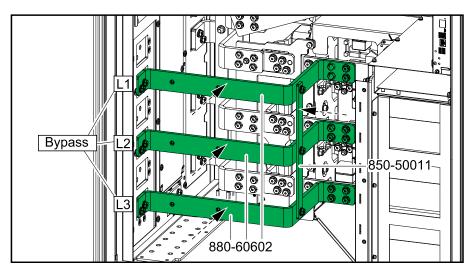
2. Install the input busbars, the neutral busbar, the DC busbars, the insulator part, and the ground busbar.

# Front View of the UPS



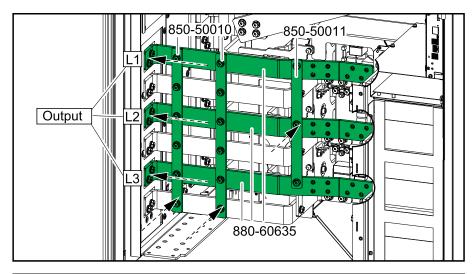
3. Install the bypass busbars and the insulator part.

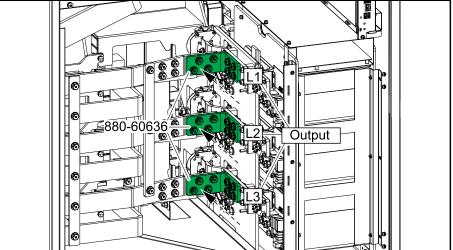
### Front View of the UPS



4. Install the output busbars and the insulator parts.

# Front View of the UPS



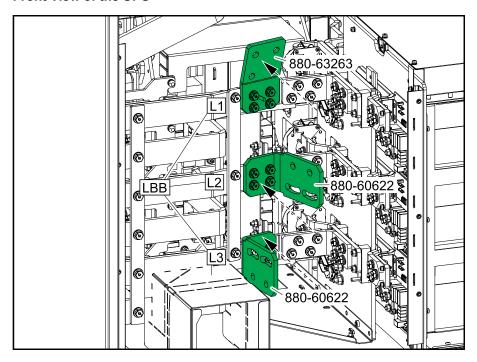


# **Install Busbars for Load Bank Breaker (Option)**

**NOTE:** The busbars for the load bank breaker were removed from the UPS during preparation for installation.

1. Install busbars for load bank breaker (LBB) in the UPS. Note the direction of the busbars.

### Front View of the UPS



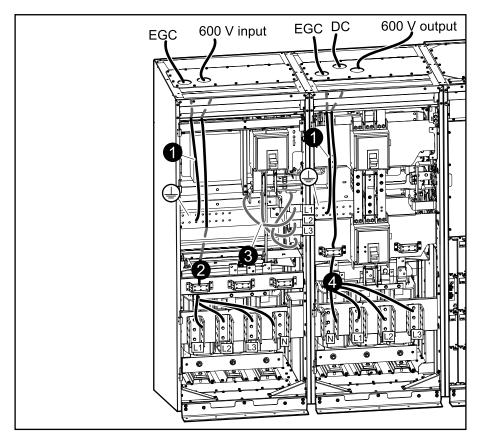
The load bank breaker cables can be routed through the top of the UPS for a permanent installation or through the open inner door for a temporary installation. See the UPS manual for information on how to create top cable entry in the UPS.

# Connect the Power Cables in a Single Mains System

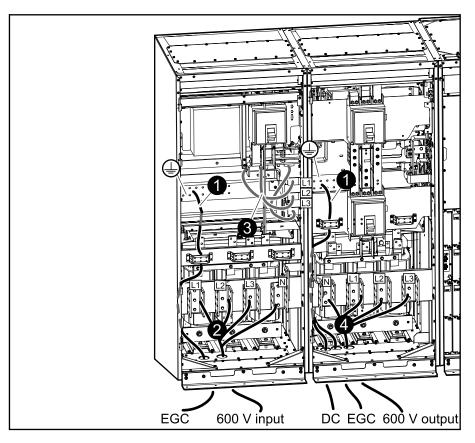
**NOTE:** The DC cables were connected during Position and Interconnect the Transformer Cabinets and the UPS, page 32.

- 1. Route the EGC cable through the top or the bottom of the transformer cabinets and connect to the ground busbar.
- 2. Route the input cables through the top or the bottom of the input transformer cabinet and connect to the input busbars (L1, L2, L3).
- 3. Connect the provided UPS input cables 0W20107 from the UIB breaker to the terminals (L1, L2, L3) in the right side of the input transformer cabinet.
- 4. Route the output cables through the top or the bottom of the output transformer cabinet and connect to the output busbars (L1, L2, L3, N).

## **Top Cable Entry**



# **Bottom Cable Entry**

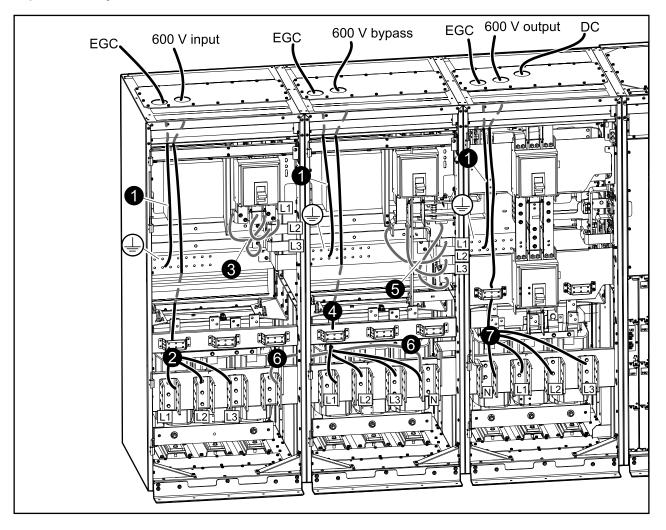


# **Connect the Power Cables in a Dual Mains System**

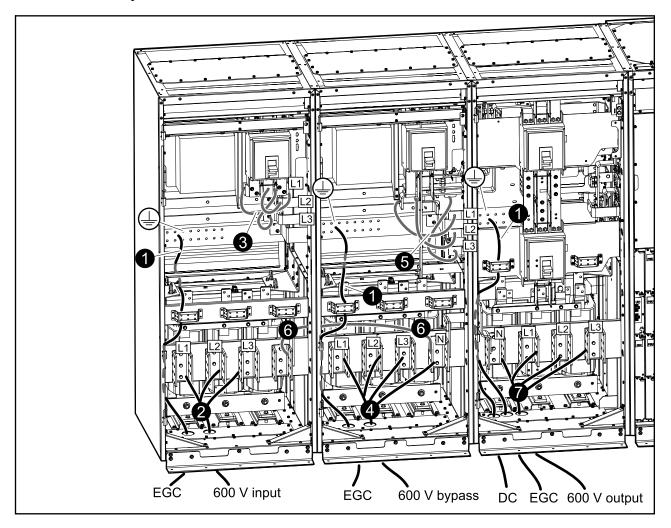
**NOTE:** The DC cables were connected during Position and Interconnect the Transformer Cabinets and the UPS, page 32.

- 1. Route the EGC cable through the top or the bottom of the transformer cabinets and connect to the ground busbar.
- 2. Route the input cables through the top or the bottom of the input transformer cabinet (UIB) and connect to the input busbars (L1, L2, L3).
- 3. Connect the provided UPS input cables 0W20108 from the UIB breaker to the terminals (L1, L2, L3) in the right side of the input transformer cabinet (UIB).
- Route the bypass cables through the top or the bottom of the input transformer cabinet (SSIB) and connect to the bypass busbars (L1, L2, L3, N).
- 5. Connect the provided UPS bypass cables 0W20107 from the SSIB breaker to the terminals (L1, L2, L3) in the right side of the input transformer cabinet (SSIB).
- 6. Connect the provided neutral cable 0W20108 between the neutral busbars in the input transformer cabinets.
- 7. Route the output cables through the top or the bottom of the output transformer cabinet and connect to the output busbars (L1, L2, L3, N).

## **Top Cable Entry**



# **Bottom Cable Entry**



# Prepare for Signal Cables in Top Cable Entry Systems

# **ADANGER**

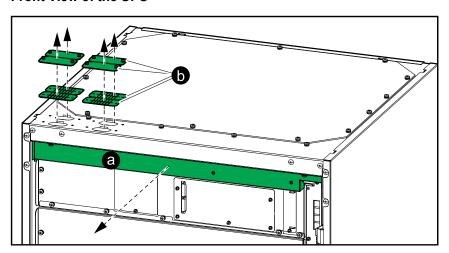
#### HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

Do not drill or punch holes with the gland plates installed and do not drill or punch holes in close proximity to the cabinet.

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

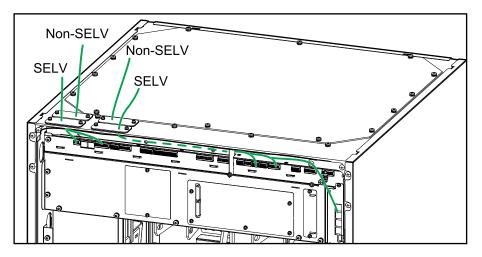
- 1. Prepare the UPS for signal cables:
  - a. Remove the cover.
  - b. Remove the gland plates and brush plates from the top of the UPS.

#### Front View of the UPS



- c. For installation without conduits: Reinstall the brush plates.
- d. **For installation with conduits**: Drill a hole in the gland plates for conduits, install conduits, and reinstall the gland plates.
- 2. Route the signal cables as shown to separate the Class 2/SELV cables from the non-Class 2/non-SELV cables. A divider inside the cable channel separates the cables.

# Front View of the UPS



# Prepare for Signal Cables in Bottom Cable Entry Systems

# **▲ DANGER**

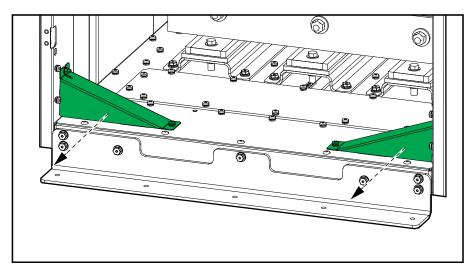
## HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

Do not drill or punch holes with the gland plates installed and do not drill or punch holes in close proximity to the cabinet.

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

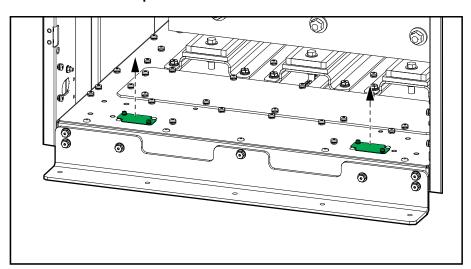
1. Remove the triangle covers from the output transformer cabinet.

# **Front View of the Output Transformer Cabinet**



2. Remove the gland plates.

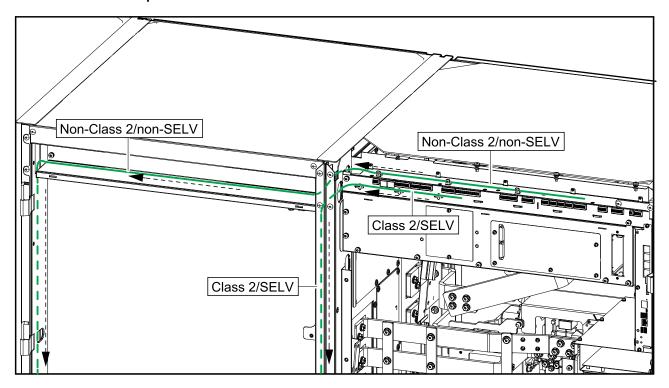
## **Front View of the Output Transformer Cabinet**



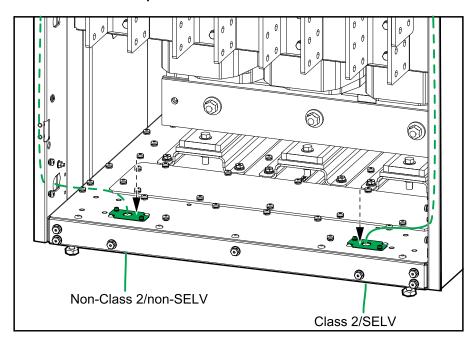
- 3. Drill/punch holes for signal cables or conduits in the gland plate. Install conduits (not provided), if applicable.
- 4. Reinstall the gland plates.

5. Route the signal cables from the UPS, into the output transformer cabinet, and out through the bottom of the output transformer cabinet.

# Front View of the Output Transformer Cabinet and the UPS



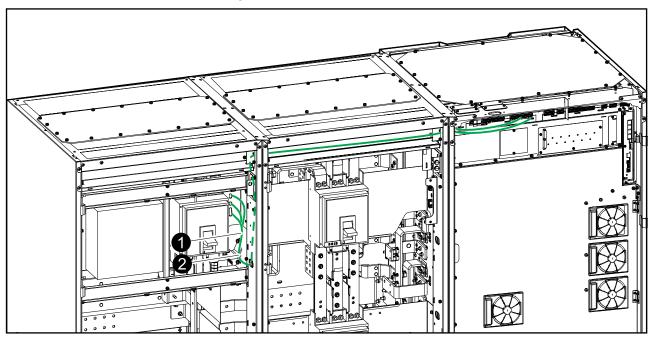
## **Front View of the Output Transformer Cabinet**



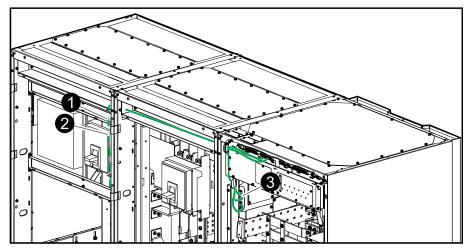
6. Reinstall the triangle covers on the output transformer cabinet.

# **Connect the Signal Cables Between the Transformer Cabinets and the UPS in a Single Mains System**

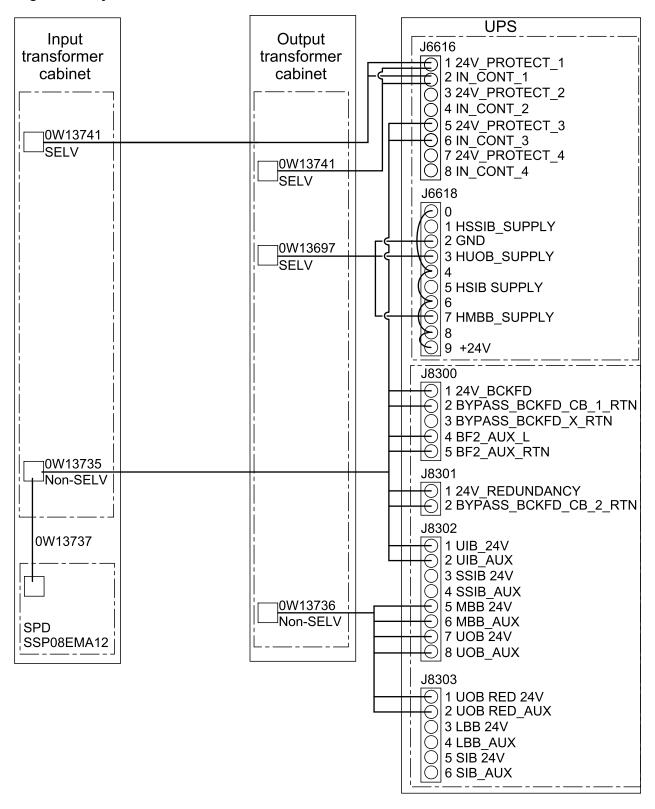
- Connect the signal cable 0W13741 (transformer thermal sensor) to the cable connection point in the input transformer cabinet and route the signal cable as shown to the UPS and connect.
- Connect the signal cable 0W13735 (UIB AUX switch) to the cable connection point in the input transformer cabinet and route the signal cable as shown to the UPS and connect.



3. Connect the provided signal cable 0W13741, signal cable 0W13697, and signal cable 0W13736 between the output transformer cabinet and the UPS as shown.

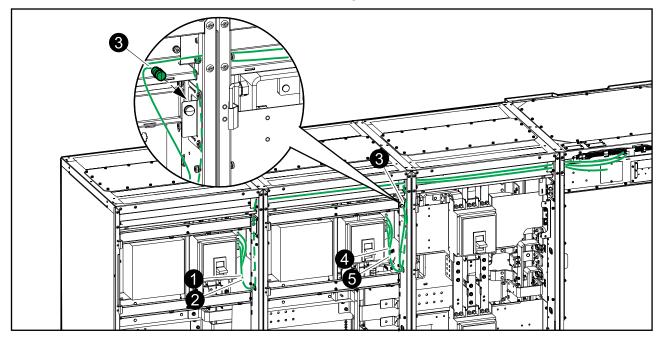


## **Single Mains System**

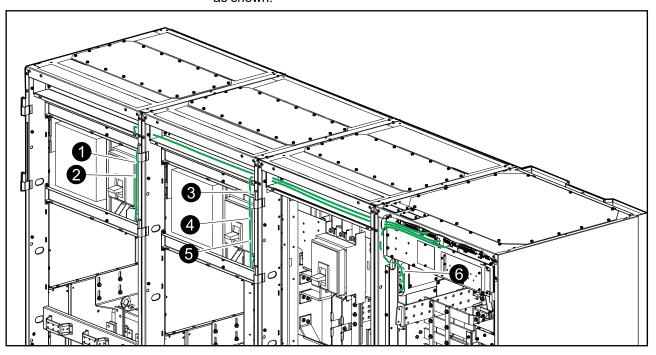


# **Connect the Signal Cables Between the Transformer Cabinets and the UPS in a Dual Mains System**

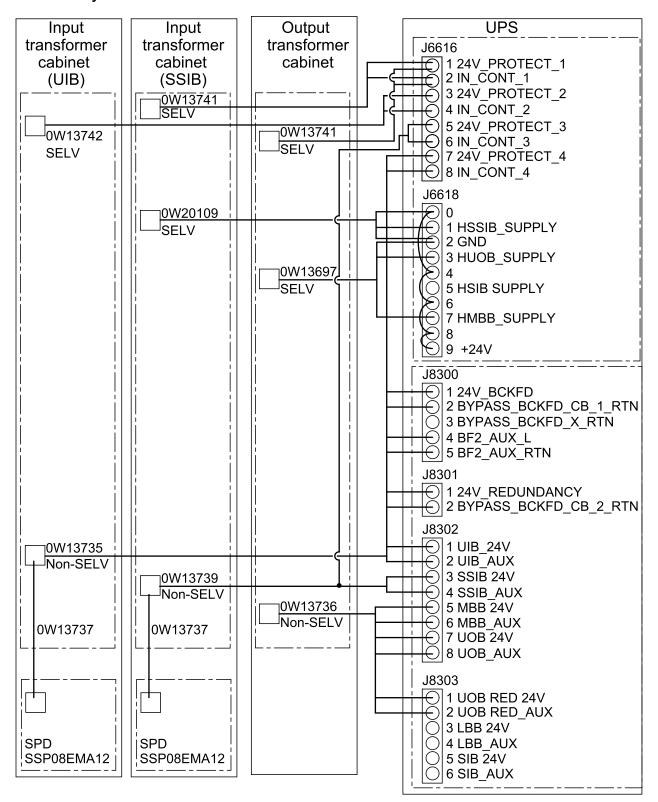
- Connect the signal cable 0W13742 (transformer thermal sensor) to the cable connection point in the input transformer cabinet (UIB) and route the signal cable as shown to the UPS and connect.
- Connect the signal cable 0W13737 (UIB AUX switch) to the cable connection point in the input transformer cabinet (UIB) and route the signal cable as shown to the UPS and connect.
- 3. Install the SSIB breaker indicator light in the input transformer cabinet (SSIB) (the parts are provided in the SSIB kit GVLOPT010):
  - a. Install the SSIB breaker indicator light in the bracket in the input transformer cabinet (SSIB).
  - b. Connect the signal cable 0W20109 (HSSIB+ and HSSIB-) to the SSIB breaker indicator light (+ and -).
  - Route the signal cable 0W20109 from the SSIB breaker indicator light as shown to the UPS and connect.
- Connect the signal cable 0W13741 (transformer thermal sensor) to the cable connection point in the input transformer cabinet (SSIB) and route the signal cable as shown to the UPS and connect
- 5. Connect the signal cable 0W13739 (SSIB AUX switch) to the cable connection point in the input transformer cabinet (SSIB) and route the signal cable as shown to the UPS and connect.



6. Connect the provided signal cable 0W13697, signal cable 0W13741, and signal cable 0W13736 between the output transformer cabinet and the UPS as shown.



### **Dual Mains System**



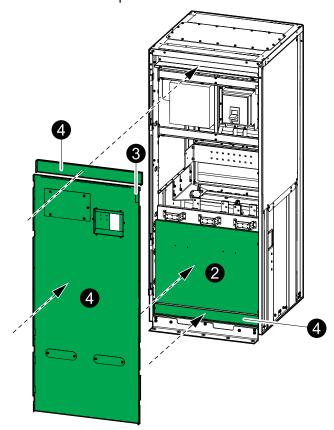
# **Add Translated Safety Labels to Your Product**

The safety labels on your product are in English and French. Sheets with translated safety labels are provided with your product.

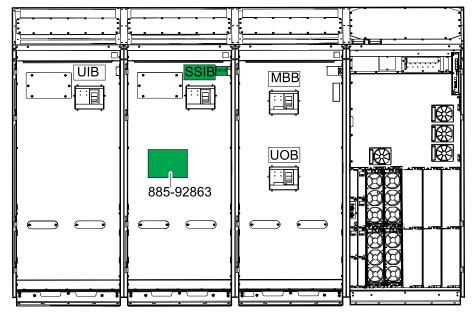
- 1. Find the sheets with translated safety labels provided with your product.
- 2. Check which 885-xxx/TMExxxx numbers are on the sheet with translated safety labels.
- 3. Locate the safety labels on your product that match the translated safety labels on the sheet look for the 885-xxx/TMExxxx numbers.
- 4. Add the replacement safety label in your preferred language to your product on top of the existing French safety label.

# **Final Installation**

- 1. Clean/vacuum the transformer cabinets of any debris and foreign objects.
- 2. Reinstall the transparent plates on the transformer cabinets.
- 3. **Only for dual mains system**: Remove the prepunched SSIB indicator light section on the upper front plate for the input transformer cabinet (SSIB).
- 4. Reinstall the front plates on the transformer cabinets.

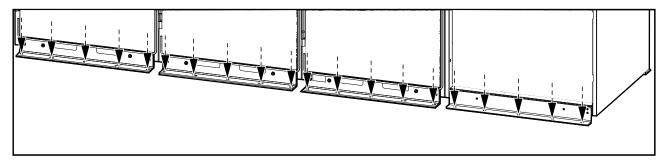


 Only for dual mains system: On the input transformer cabinet (SSIB), replace the UIB label with the SSIB label, add the indicator light label HSSIB, and replace the diagram label 885-92825 with the diagram label 885-92863. The labels are provided with GVLOPT010.



6. **Only for seismic anchoring**: Mount the front anchoring brackets to the floor. Use appropriate hardware for the floor type – the hole diameter in the front anchoring brackets is ø16 mm. Minimum requirement is M12 strength grade 8.8 hardware.

## Front View of the Transformer Cabinets and the UPS

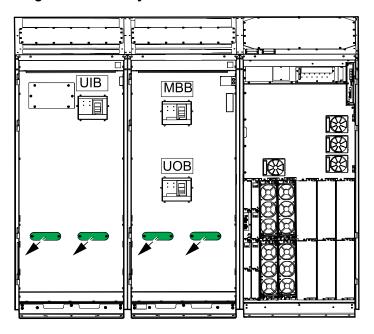


# **Decommission or Move the Transformer Cabinets to a New Location**

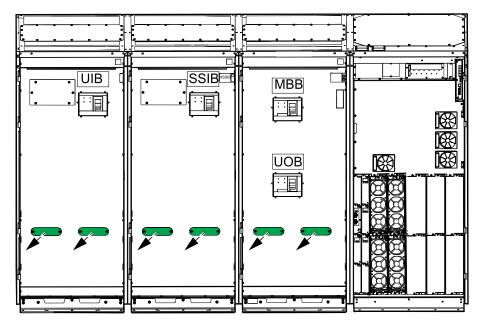
**NOTE:** Follow the instructions in the UPS installation manual to prepare the UPS for being moved/decommissioned.

- 1. Shut down the UPS system completely.
- 2. Lockout/Tagout all breakers in the input transformer cabinet(s) in the OFF (open) position.
- 3. Lockout/Tagout all breakers in the output transformer cabinet in the OFF (open) position.
- 4. Lockout/Tagout all breakers in the upstream switchgear in the OFF (open) position.
- 5. Lockout/Tagout all battery breakers in the switchgear/battery solution in the OFF (open) position.
- 6. Open the front doors of the transformer cabinets and the UPS.
- 7. If present, Lockout/Tagout the backfeed breaker BF2 in the OFF (open) position on the UPS.
- 8. Remove the two plates from each of the transformer cabinets.

### Single Mains UPS System



# **Dual Mains UPS System**



9. On the transformer cabinets, measure for and verify ABSENCE of voltage with a multimeter probe through the holes in the transparent plate for input, bypass, output, neutral. Reinstall the plates covering the measurement points on the transformer cabinets.

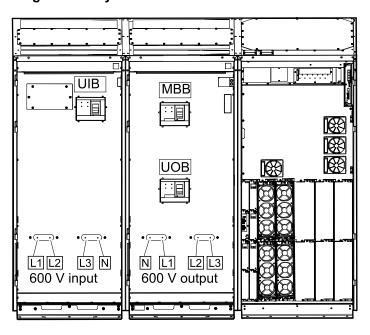
# **AADANGER**

# HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

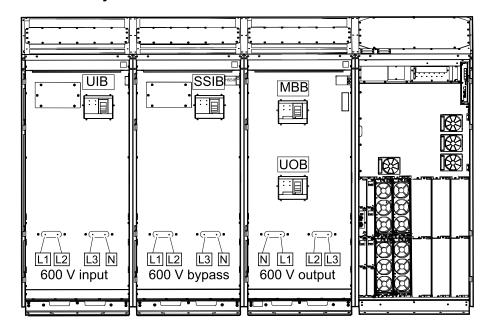
Measure for and verify ABSENCE of voltage with a multimeter probe through the holes in the transparent plate for input, bypass, output.

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

### Single Mains System

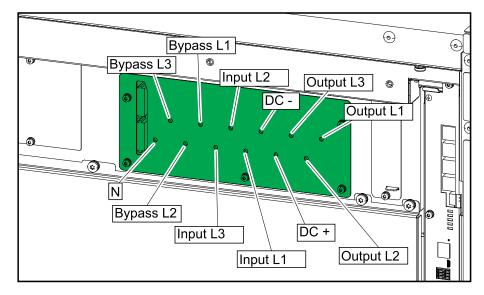


# **Dual Mains System**



 On the UPS, measure for and verify ABSENCE of voltage with a multimeter probe through the holes in the transparent plate for input, bypass, output, neutral, and DC.

#### Front View of the UPS



- 11. Open the inner door of the UPS.
- 12. On the UPS, measure for and verify ABSENCE of voltage on each input/bypass/output/DC busbar before continuing.

# **AADANGER**

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

Measure for and verify ABSENCE of voltage on each input/bypass/output/ DC busbar before continuing.

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

- 13. Remove the busbars and insulator parts that connect the UPS to the output transformer cabinet. See Install the Busbars Between the UPS and the Output Transformer Cabinet in a Single Mains System, page 48 or Install the Busbars Between the UPS and the Output Transformer Cabinet in a Dual Mains System, page 50 for details. Save all parts for reinstallation.
- 14. Remove the busbars and insulator parts that connect the transformer cabinets to each other. See Install the Busbars Between the Transformer Cabinets in a Single Mains System, page 37 or Install the Busbars Between the Transformer Cabinets in a Dual Mains System, page 40 for details. Save all parts for reinstallation.
- 15. Remove the top brackets and the screws in the front that interconnect the UPS and the transformer cabinets externally. Remove the two special screws that interconnect the UPS and the output transformer cabinet internally. See Position and Interconnect the Transformer Cabinets and the UPS, page 32 for details. Save all parts for reinstallation.

16. **If external sync is present on the UPS**: Remove the transparent protection cover from the external synchronization board 0P4809. The external synchronization board 0P4809 is located on the rear of the front plate. Disconnect the signal cables from the external synchronization board 0P4809.

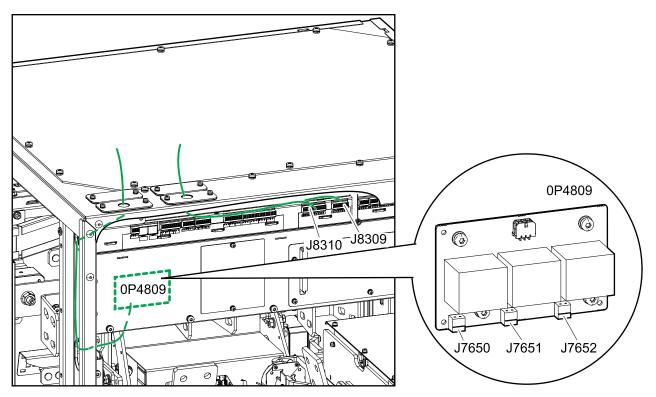
# **AADANGER**

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

Check for absence of voltage for all three signal terminals on the external synchronization board 0P4809. When the external synchronization cables are installed, the terminals on the external synchronization board 0P4809 may be energized. Disconnect the fuse disconnector device at the source before removing the transparent protection cover.

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

#### Front View of the UPS



- 17. Close the inner door of the UPS and reinstall the screws.
- 18. Disconnect and remove any signal cables from the UPS.
- 19. Remove the seismic front anchoring bracket/front transportation bracket from the UPS and the transformer cabinets. Save for reinstallation.
- 20. Close and lock the front door of the UPS.
- 21. Raise the feet of the UPS until the casters have full contact with the floor.

22. Move the UPS out of the way of the transformer cabinets by rolling it on the casters.

# **AWARNING**

### **TIPPING HAZARD**

- The casters of the UPS are exclusively for transport on flat, even, hard, and horizontal surfaces.
- The casters of the UPS are intended for transport over short distances (i.e. inside the same building).
- Move at a slow pace and pay close attention on the floor conditions and the balance of the UPS.

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

23. Remove the front plates and the transparent plates from the transformer cabinets. See Prepare the Transformer Cabinets for Installation, page 25 for details.

24. Measure for and verify ABSENCE of voltage on each input/UPS input/bypass/UPS bypass/output busbar in the transformer cabinets before continuing.

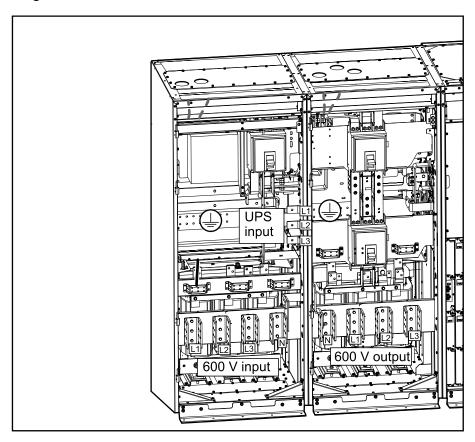
# **AADANGER**

# HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

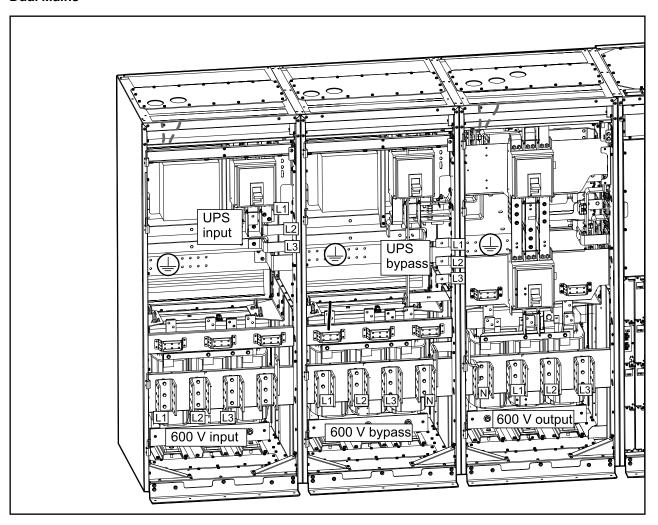
Measure for and verify ABSENCE of voltage on each input/UPS input/bypass/UPS bypass/output busbar before continuing.

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

## **Single Mains**



#### **Dual Mains**



- 25. Remove the power cables from the transformer cabinets. See Connect the Power Cables in a Single Mains System, page 54 or Connect the Power Cables in a Dual Mains System, page 56 for details.
- 26. Perform the following on the transformer cabinets to reposition parts to their original position. See Prepare the Transformer Cabinets for Installation, page 25 for details.
  - a. Remove the left side panel from the leftmost input transformer cabinet and reinstall it on the left side of the UPS.
  - b. Reposition the protections cover to their original position on the right side panel of the output transformer cabinet.
  - c. Reposition the two rear brackets and the top bracket on each transformer cabinet to their original position.
  - d. Reinstall the front plates on the transformer cabinets.
- 27. Close and lock the front door of the transformer cabinets.
- 28. Raise the feet of the transformer cabinets until the casters have full contact with the floor.
- 29. Roll out the output transformer cabinet far enough that you can access the DC cables. Disconnect the DC cables and remove the DC cables. See Position and Interconnect the Transformer Cabinets and the UPS, page 32 for details.

30. You can now move the each transformer cabinet by rolling it over the floor on the casters.

# **AWARNING**

### **TIPPING HAZARD**

- The casters of the transformer cabinet are exclusively for transport on flat, even, hard, and horizontal surfaces.
- The casters of the transformer cabinet are intended for transport over short distances (i.e. inside the same building).
- Move at a slow pace and pay close attention on the floor conditions and the balance of the transformer cabinet.

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

31. If present, remove the rear seismic anchoring bracket from the transformer cabinets and remove the seismic anchors from the floor. Save for reinstallation.

32. For transport over longer distances or in conditions that are not suitable for the casters of the transformer cabinet:

# **AWARNING**

### **HEAVY LOAD**

The transformer cabinet is heavy. Take appropriate precautions during handling and preparation for transport/shipment.

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

# **AWARNING**

#### TIPPING HAZARD

For transport over longer distances or in conditions that are not suitable for the casters of the transformer cabinet, ensure:

- that personnel performing the transport have necessary skill and have received adequate training;
- to use appropriate tools to safely lift and transport the transformer cabinet;
- to protect the product against damage by using appropriate protection (like wrapping or packaging).

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

Transportation requirements:

- Mount the transformer cabinet in a vertical position in the center of a suitable pallet with minimum pallet dimensions: 1000 mm x 1000 mm (39.4 in x 39.4 in). The pallet must be suitable for the weight of the transformer cabinet. GVIT300 weighs 640 kg (1411 lbs), GVIT500 weighs 795 kg (1753 lbs), GVOT300 weighs 602 kg (1327 lbs), GVOT500 weighs 767 kg (1691 lbs).
- Use appropriate means of fixation to mount the transformer cabinet to the pallet.
- The original shipping pallet in combination with the original transportation brackets can be reused, if in undamaged condition.

# **ADANGER**

#### **TIPPING HAZARD**

- The transformer cabinet must be appropriately fixed to the pallet immediately after being placed on the pallet.
- The fixation hardware must be strong enough to withstand vibrations and shocks during loading, transport, and unloading.

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

# **AWARNING**

# **UNEXPECTED EQUIPMENT BEHAVIOR**

Do not lift the transformer cabinet with a forklift/pallet truck directly on the frame as it may bend or damage the frame.

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

- 33. Perform one of the following:
  - Decommission the transformer cabinet, OR
  - Move the transformer cabinet to a new location to install it.
- 34. Only for installing the transformer cabinet in a new location: Follow the installation manual to install the transformer cabinet in the new location. See Installation Procedure for Single Mains UPS System, page 19 or Installation Procedure for Dual Mains UPS System, page 21 for installation overview. Startup must only be performed by Schneider Electric.

# **AADANGER**

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

Startup must only be performed by Schneider Electric.

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

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

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