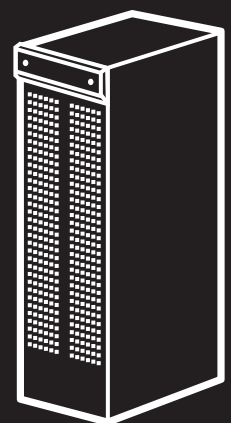


## AIS<sup>®</sup> 3000

10-40kVA  
400V

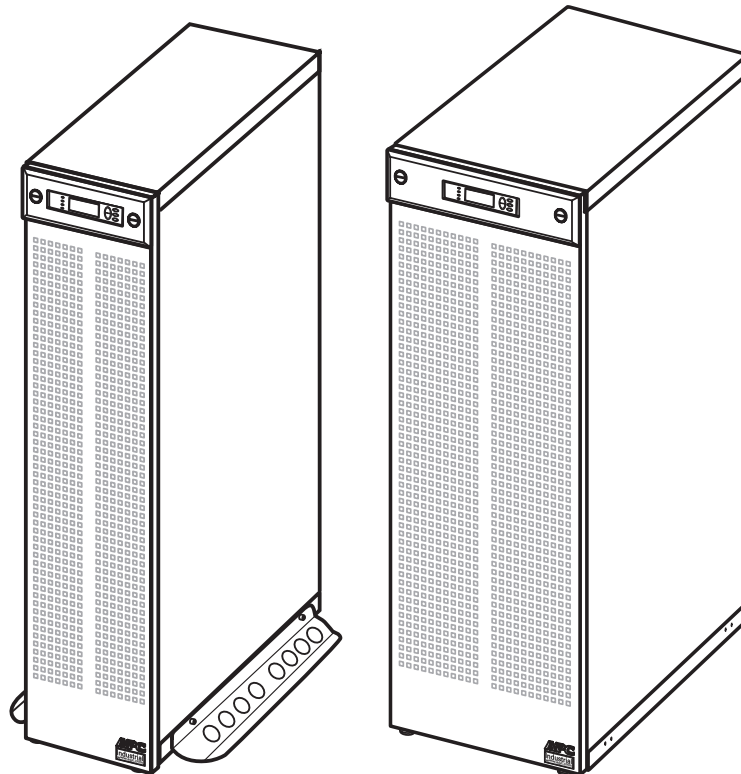
### Site Preparation and Installation Manual





# **AIS<sup>®</sup> 3000 10-40kVA 400V**

## **Site Preparation and Installation Manual**



### **IMPORTANT SAFETY INSTRUCTIONS – SAVE THESE INSTRUCTIONS**

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





# Contents

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**Safety ..... 1**

- SAVE THESE INSTRUCTIONS ..... 1**
- Symbols used in this guide ..... 1
- Environmental symbols ..... 2
- General safety ..... 2

**Introduction ..... 4**

- UPS Family Range and Components ..... 6**
- 352mm Enclosures ..... 6
- 523mm Enclosures ..... 6
- System sizes, part Nos., number of Battery Modules and weights ..... 7
- Part number coding: ..... 7
- Battery Module ..... 8
- Front Panel overview ..... 8
- Stabilizing Bracket ..... 9
- User interface ..... 10

- Options ..... 11**
- Battery Securing Bracket and Floor Anchoring ..... 11
- Conduit Box ..... 11
- Extended Run Battery Enclosure (XR Enclosure) and Battery Module ..... 12
- Part Numbers for XR Enclosures ..... 13
- Part Number for Battery Module ..... 13
- Maintenance Bypass Panels with Power Distribution Capability ..... 14

**Site Preparation ..... 15**

- Installation Space Requirements ..... 15**
- Clearance for 523mm Enclosures ..... 15
- Clearance for stand-alone 352mm Enclosures ..... 16

<b>Floor Anchoring Preparation</b> .....	<b>17</b>
Drilling floor holes for floor anchoring .....	17
Hole positions for floor anchors (stand-alone Enclosures) .....	17
<b>Operating Environment</b> .....	<b>19</b>
Operating conditions .....	19
Heat dissipation .....	19
Audible noise .....	19
Recommended source connections .....	20
Recommended current protection .....	21
Minimum setting of breakers for 10kVA UPS .....	22
Minimum setting of breakers for 15kVA UPS .....	22
Minimum setting of breakers for 20kVA UPS .....	23
Minimum setting of breakers for 30kVA UPS .....	23
Minimum setting of breakers for 40kVA UPS .....	24
Recommended phase-conductor sizes for a 30°C temperature environment .....	24
EPO switch wiring .....	25
<b>Basic Wiring Overview</b> .....	<b>26</b>
<b>Site Preparation Checklist</b> .....	<b>27</b>

## **Electrical Installation** ..... **28**

<b>Total-Power-Off Procedure</b> .....	<b>28</b>
<b>Front Panel</b> .....	<b>30</b>
Removal .....	30
Installation .....	31
<b>System-Electrical Information</b> .....	<b>32</b>
Source connections .....	33
<b>Wiring</b> .....	<b>34</b>
<b>Input/Output Wiring – Single Mains (default)</b> .....	<b>35</b>
Wiring procedure - single mains .....	35
<b>Input/Output Wiring – Dual Mains</b> .....	<b>37</b>
Wiring procedure - dual mains .....	37

<b>Communication Wiring to EPO and Optional Equipment . . . . .</b>	<b>39</b>
Pin connections J106 (XR Enclosure) and J108 (EPO) . . . . .	39
Pin connections J106 (UPS) to J200 (XR Enclosure - option) . . . . .	40
XR Enclosure, APC Maintenance Bypass Panel, and Generator Control wiring . . . . .	40
Pin connections J108 (for EPO wiring options) . . . . .	41
<b>General Charge Setting . . . . .</b>	<b>42</b>
Charge setting procedure . . . . .	42
<b>Leveling Feet . . . . .</b>	<b>43</b>
Setting the leveling feet . . . . .	43
<b>Floor Anchoring (option) . . . . .</b>	<b>44</b>
Floor anchoring of stand-alone systems . . . . .	44
Battery securing . . . . .	45
<b>Wiring Verification Procedure . . . . .</b>	<b>46</b>
<b>Installation Site Checklist . . . . .</b>	<b>48</b>
<b>LIMITED FACTORY WARRANTY . . . . .</b>	<b>49</b>
APC product covered . . . . .	49
Terms of warranty . . . . .	49
Non-transferable warranty extends to first purchaser for use . . . . .	49
Assignment of warranties . . . . .	49
Drawings, descriptions . . . . .	50
Warranty claims procedure . . . . .	50
Exclusions . . . . .	50



# Safety

## SAVE THESE INSTRUCTIONS

---

This guide contains important instructions that should be followed when handling the UPS, Battery Enclosures, and Batteries.

### Symbols used in this guide



**WARNING!**

Risk of electric shock.



**CAUTION!**

Read this information to avoid equipment damage.



Note

Indicates important information.



Indicates that more information is available on this subject in a different section of this manual.



See also

Indicates that more information is available on the same subject in a different manual.



Two people to lift a component weighing between 18 - 32 kg.








Three people to lift a component weighing between 32 - 54 kg.



Use a pallet jack or a forklift for components over 54 kg.

**Environmental symbols**

				
Temperature	Ventilation requirements	Humidity	Dust/Fumes	Altitude

**General safety**



**WARNING!**

All electrical power and control wiring must be installed by a qualified electrician and comply with local and national codes.



**WARNING!**

When connected, the UPS contains energy from both AC and DC sources. If the UPS has dual mains supply, be aware of the two AC supply sources. Risk of electric shock - parts inside the UPS are energized from the battery supply even the AC power is disconnected. Follow the *Total-Power-Off* procedure in this manual to completely de-energize the system. Disconnect charging source prior to connecting or disconnecting battery terminals.



**WARNING!**

Servicing of batteries should be performed or supervised by personnel knowledgeable of batteries and the required precautions. Keep unauthorized personnel away from batteries.



**WARNING!**

Batteries do not contain serviceable parts. Only APC authorized personnel may open batteries.



**WARNING!**

Do not dispose of battery or batteries in a fire. The battery may explode. Do not open or mutilate the battery or batteries. Released electrolyte is harmful to the skin and eyes. It may be toxic.



**WARNING!**

Risk of Energy Hazard, 96 V, 7.2 Ampere-hour battery. Before replacing batteries, remove watches, rings, or other metal objects. High energy through conductive materials could cause severe burns.



**WARNING!**

When handling batteries, wear rubber gloves and boots. Do not lay tools or metal objects on top of batteries.



**WARNING!**

When replacing a Battery Unit, replace with the same number of the: APC SYBT1 (always replace a whole Battery Module (4 Battery Units) at a time).



**WARNING!**

Only trained personnel familiar with the construction and operation of the equipment and the electrical and mechanical hazards involved, may install and remove system components.



**CAUTION!**

Wait until you are ready to power up the system before installing Battery Modules in the UPS. Failure to do so can result in a deep discharge of the batteries and cause permanent damage. The time from the battery installation time till the UPS is powered up should not exceed 72 hours or 3 days.



**See also**

For configurations including customer-supplied external batteries, refer to manufacturer's battery installation and maintenance instructions.

# Introduction

Welcome to the Site Preparation and Installation Manual for the AIS® 3000. This manual contains information on how to prepare your site for the installation of the UPS and optional APC equipment (also available at [www.apc.com](http://www.apc.com)) and instructions on how to carry out the electrical and mechanical installation.

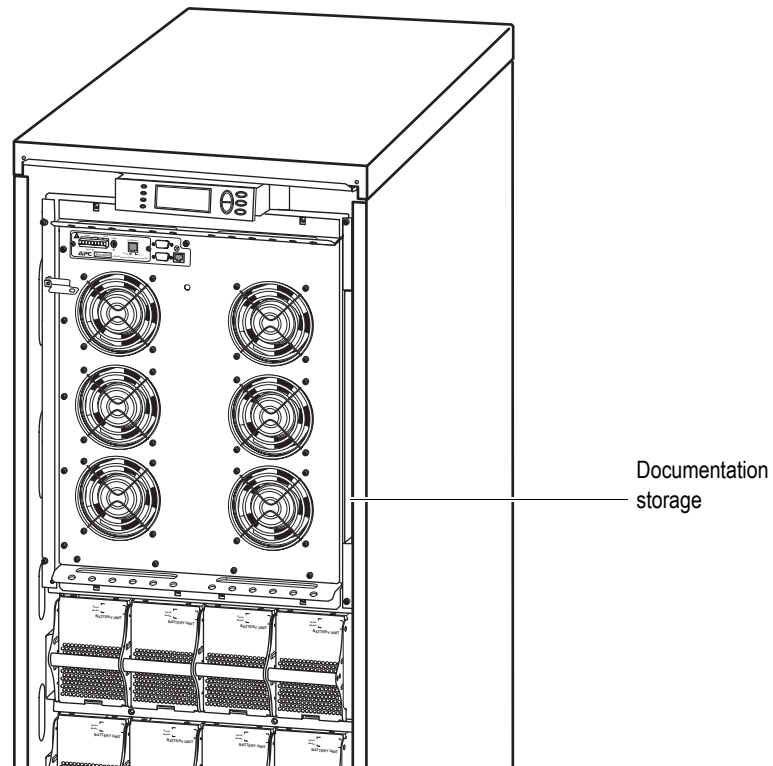
Separate manuals are available on:

- Receiving and Unpacking - part # 990-1961
- Operation - part # 990-2259



Note

The user manuals are provided in the documentation storage area at the top right corner on the UPS (behind the Front Panel).







**Note**

For more information on APC products and services, visit us at [www.apc.com](http://www.apc.com)

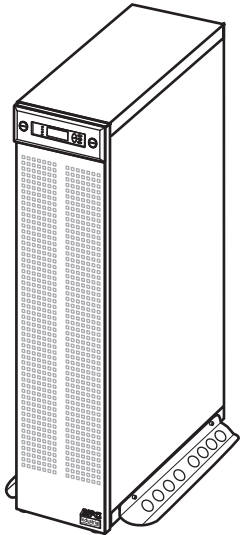


**Note**

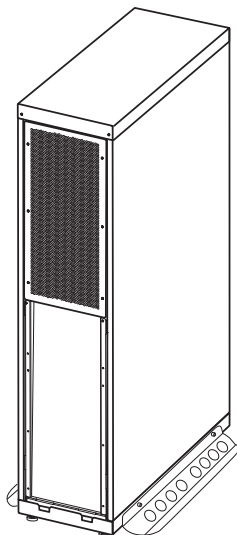
Most illustrations show 523mm Enclosures but apply to both Enclosure sizes. Any differences between the two Enclosure sizes will be addressed in the manual.

# UPS Family Range and Components

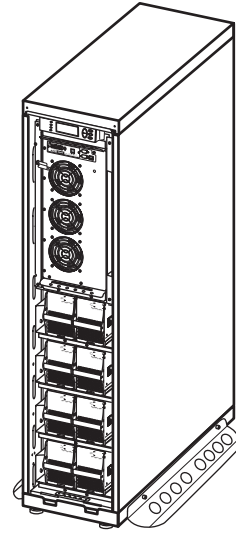
## 352mm Enclosures



Front view

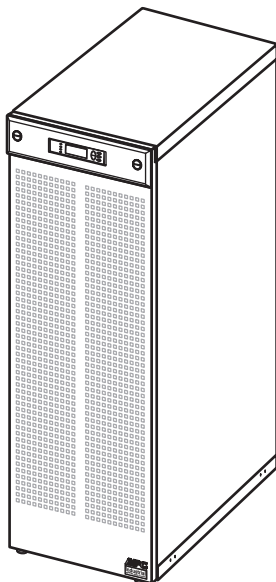


Rear view

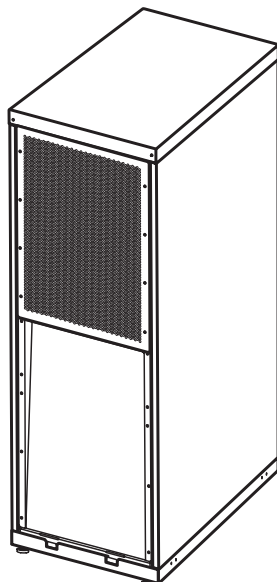


Front view without cover  
10-20kVA

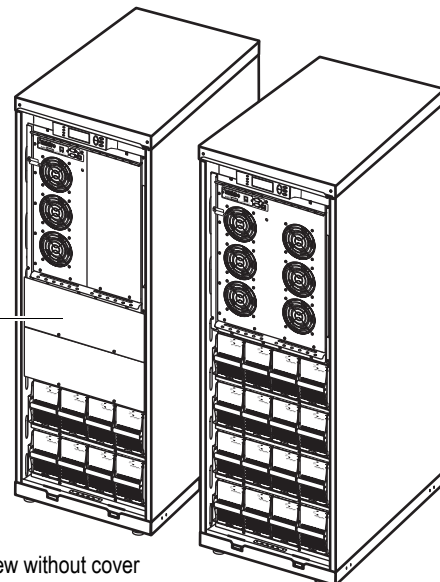
## 523mm Enclosures



Front view



Rear view



Front view without cover  
10-20kVA

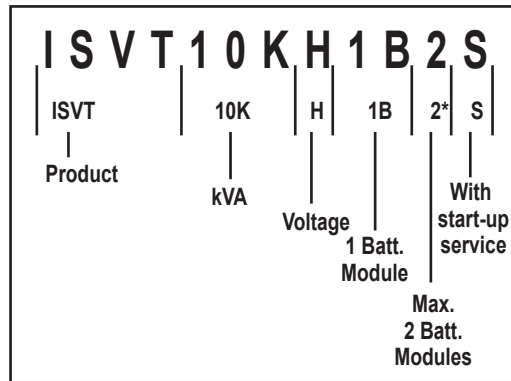
Front view without cover  
30-40kVA

**System sizes, part Nos., number of Battery Modules and weights**

<b>Height (identical for all Enclosure sizes)</b>	1490mm
<b>Depth (identical for all Enclosure sizes)</b>	854mm

System Size/ Enclosure width		Installed weight			Installed weight	
	APC Part No.	kg		APC Part No.	kg	
10kVA 352mm	ISVT10KH1B2S	308.7		ISVT10KH2B2S	404.7	
10kVA 523mm	ISVT10KH1B4S	345.4		ISVT10KH2B4S	441.4	
10kVA 523mm	ISVT10KH3B4S	537.4		ISVT10KH4B4S	633.4	
15kVA 352mm	ISVT15KH2B2S	404.7				
15kVA 523mm	ISVT15KH2B4S	441.4		ISVT15KH3B4	537.4	
15kVA 523mm	ISVT15KH4B4S	633.4				
20kVA 352mm	ISVT20KH2B2S	404.7				
20kVA 523mm	ISVT20KH2B4S	472.0		ISVT20KH3B4S	568.0	
20kVA 523mm	ISVT20KH4B4S	664.0				
30kVA 523mm	ISVT30KH3B4S	569.0		ISVT30KH4B4S	665.0	
40kVA 523mm	ISVT40KH4B4S	665.0				

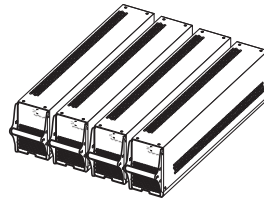
**Part number coding:**



\*) 4 = max. 4 Battery Modules

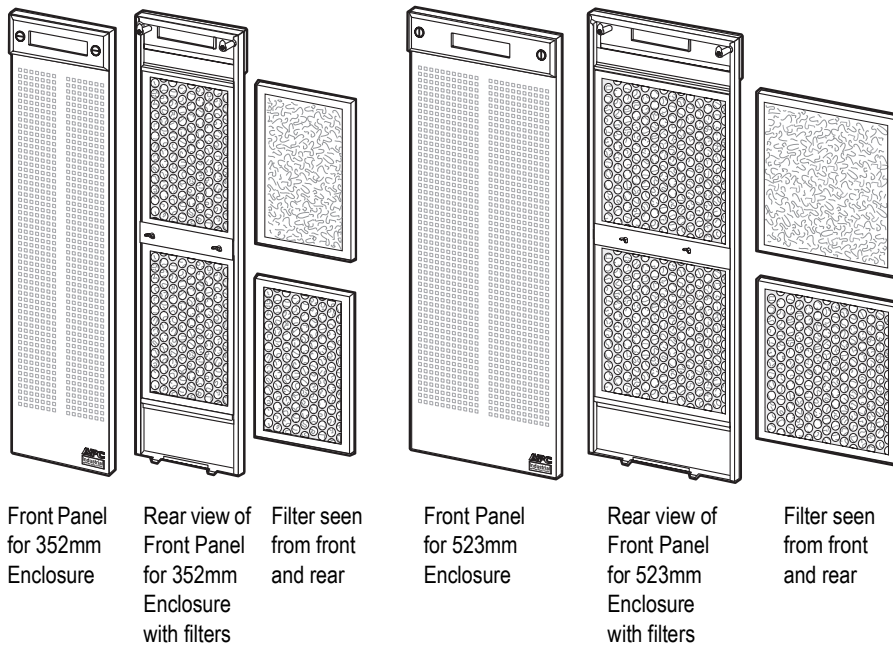
## Battery Module

One Battery Module consists of 4 Battery Units (shipping in the UPS Enclosure).



4 x 24kg

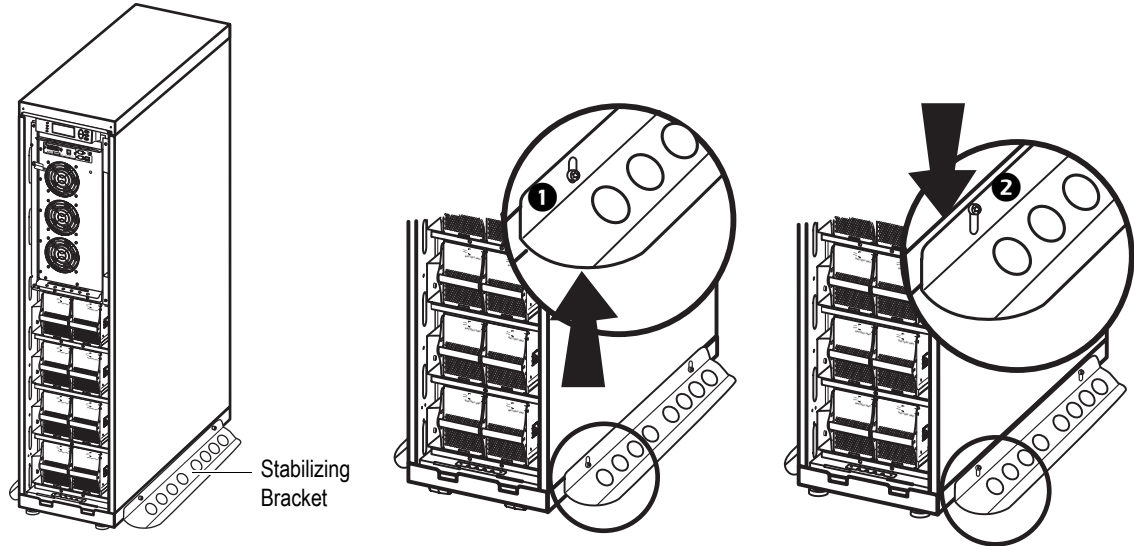
## Front Panel overview



Front Panel attachment procedure described in the *Front Panel* section.

## Stabilizing Bracket

Always install the Stabilizing Brackets on the 352mm Enclosure (shipped with the UPS) to enhance the stability of the Enclosure.



If the Enclosure needs to be moved after Stabilizing Brackets have been attached to the Enclosure, the Stabilizing Brackets must be pushed up into their high position.

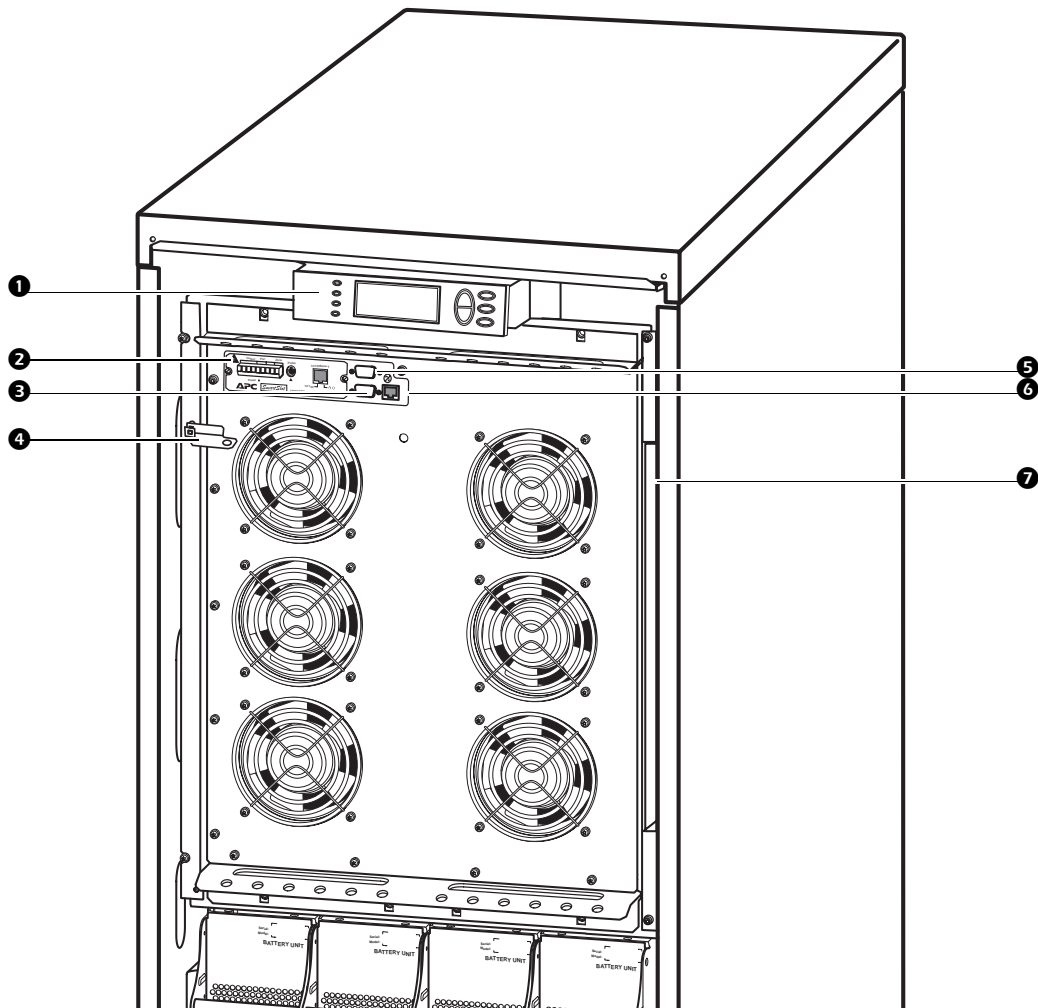
- ❶ Loosen the two screws of both Stabilizing Brackets, and push the bracket up into the high position.
- ❷ When the Enclosure has reached its new position, push the Bracket into its “down” position again, and tighten the screws.



### **WARNING!**

For stability reasons, do not remove Stabilizing Brackets from 352mm Enclosures.

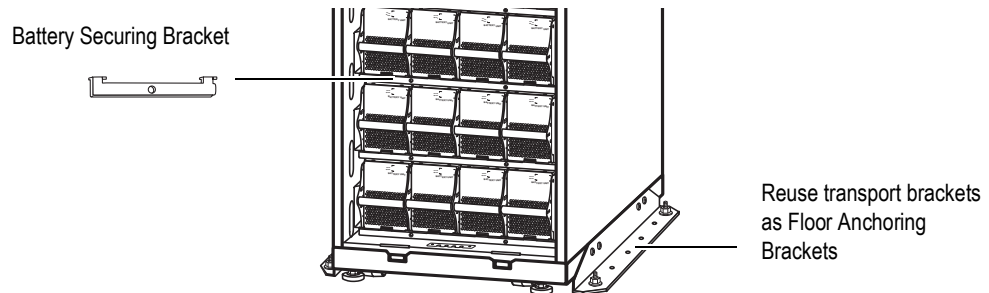
## User interface



- ❶ Display: user-control interface used to configure the functionality, monitor the system, set alarm thresholds, and to provide audible and visual alarms.
- ❷ Network Management Card with Environmental Monitor (AP9619): used for remote system control and monitoring, e-mail notifications etc. See separate manual for the AP9619.
- ❸ Computer-interface port for the connection of computers with APC Powerchute® software.
- ❹ Mechanical Bypass Lever: used to bypass the upstream mains power around the UPS to support the load directly = internal mechanical bypass operation.
- ❺ Service port (for APC maintenance personnel only).
- ❻ Display port for the connection of display communication cable.
- ❼ Documentation storage.

# Options

## Battery Securing Bracket and Floor Anchoring



<b>Battery Securing Bracket</b>	
Battery Securing Bracket	SUVTOPT003

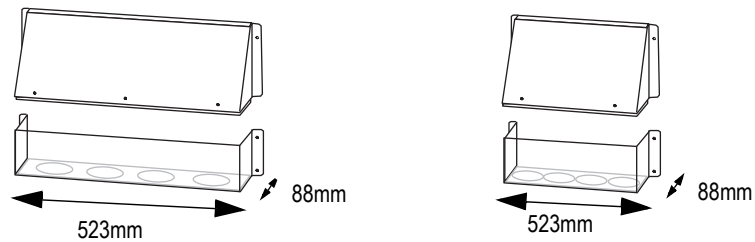


Battery Securing Brackets are also applicable to XR Battery Enclosure.



Floor-anchoring bolts are not provided with the UPS. Purchase the floor anchors locally.

## Conduit Box



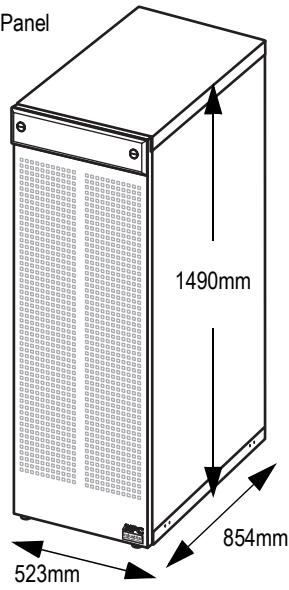
<b>Conduit Box</b>	
Conduit Box for 352mm Enclosures	SUVTOPT001
Conduit Box for 523mm Enclosures	SUVTOPT002



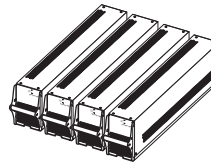
Conduit Box is also applicable to XR Battery Enclosure.

## Extended Run Battery Enclosure (XR Enclosure) and Battery Module

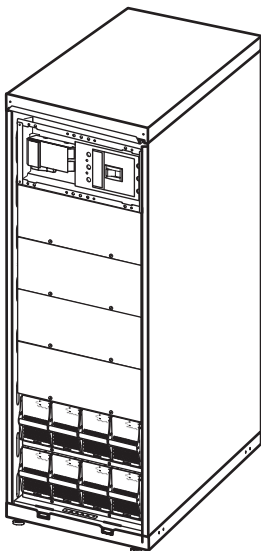
XR Enclosure with Front Panel



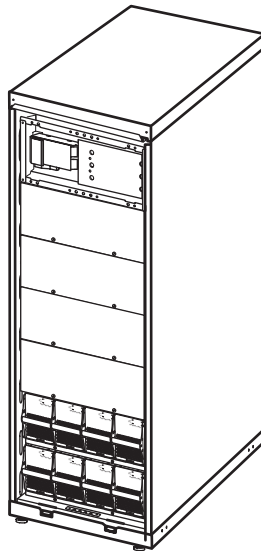
Battery Module



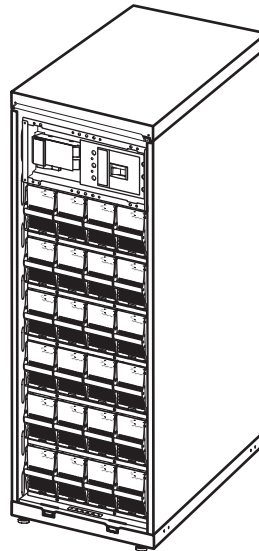
XR Enclosure with DC Breaker, fuses and 2 Battery Modules



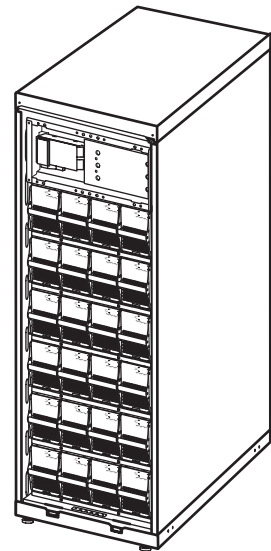
XR Enclosure with DC fuses only



XR Enclosure with DC Breaker, fuses and 6 Battery Modules



XR Enclosure with DC fuses only



### XR Enclosure weights:

2 Battery Modules

410.8kg

6 Battery Modules (4 of the modules are shipped separately on a pallet)

794.8kg

### Battery Module weight

4 units = 1 Battery Module

4x24kg



**Part Numbers for XR Enclosures**

<b>XR Enclosure</b>	
Enclosure with DC breaker, DC fuses and 2 Battery Modules (expandable to 6)	ISVTBXR2B6S
Enclosure with DC breaker, DC fuses and 6 Battery Modules	ISVTBXR6B6S
Enclosure with DC fuses and 2 Battery Modules (expandable to 6)	ISVTXR2B6S
Enclosure with DC fuses and 6 Battery Modules	ISVTXR6B6S

**Part Number for Battery Module**

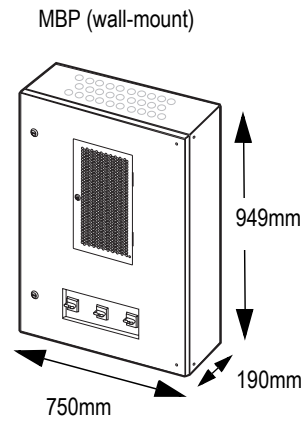
<b>Battery Module</b>	
Battery Module	SYBT4

## Maintenance Bypass Panels with Power Distribution Capability



Note

Further details on APC Maintenance Bypass Panel (MBP) with Power Distribution Capability are available on [www.apc.com](http://www.apc.com).



The Maintenance Bypass Panel provides overcurrent protection to the entire UPS system. It is also used to bypass the utility power around the UPS instead of through the system, e.g. when UPS maintenance is carried out.



Note

For more details on optional APC equipment for the AIS® 3000, contact APC Technical Support in the U.S. at (1)800-555-2725. For other countries, see technical support numbers on rear cover.

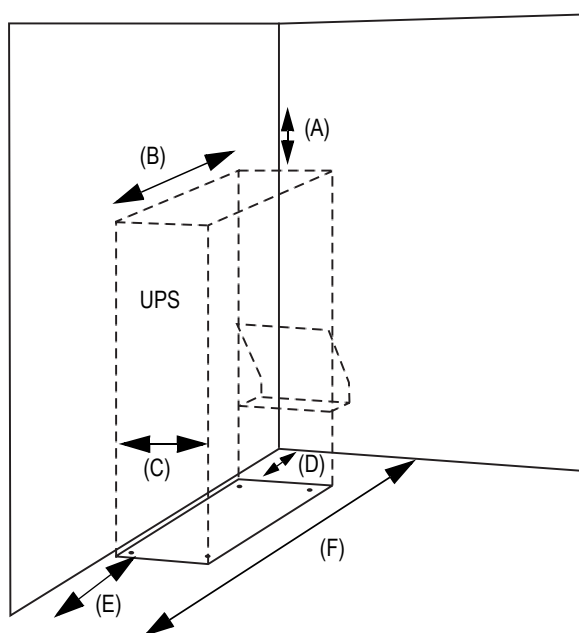
# Site Preparation

## Installation Space Requirements



Allow for enough working space behind the Enclosure for electrical work to be carried out (e.g. if you want to connect an XR Enclosure at a later stage).

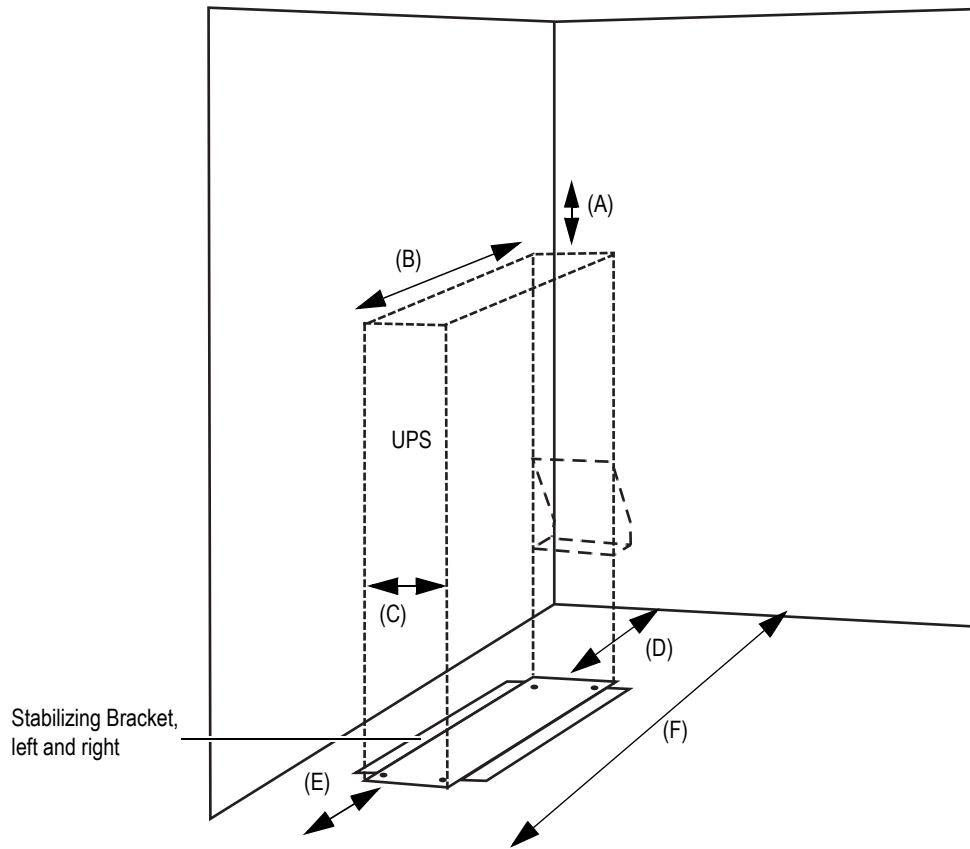
### Clearance for 523mm Enclosures



Space requirements	mm
Minimum clearance above Enclosure (A)	0
Enclosure depth (B)	854
Enclosure width (C)	523
Minimum free rear space for ventilation* (D)	100
Minimum front clearance (E)	1000
No side clearance required (add width of Enclosure Stabilizing Brackets for floor anchoring if applicable)*	0
Stabilizing Bracket width	85
Total installation depth, inclusive of Front Panel, and minimum front and rear clearances (F)	1954

\*) All physical installations must comply with all national standards.

**Clearance for stand-alone 352mm Enclosures**



Space requirements	mm
Minimum clearance above UPS (A)	0
UPS depth (B)	854
UPS width	352
Minimum free rear space for ventilation* (D)	100
Minimum front clearance (E)	1000
No side clearance required (add width of Stabilizing Bracket for floor anchoring if applicable)*	0
Stabilizing Bracket width	85
Total installation depth, inclusive of Front Panel, and minimum front and rear clearances (F)	1954

\*) All physical installations must comply with all national standards.

# Floor Anchoring Preparation



Note

If floor anchoring and battery securing is required in your area, read this section. If not, proceed to *Operating Environment*. However, if you install a 352mm Enclosure, it must always be equipped with the Enclosure Stabilizing Bracket for enhanced stability (not necessary to bolt the Enclosure Stabilizing Bracket to the floor in non-seismic areas).

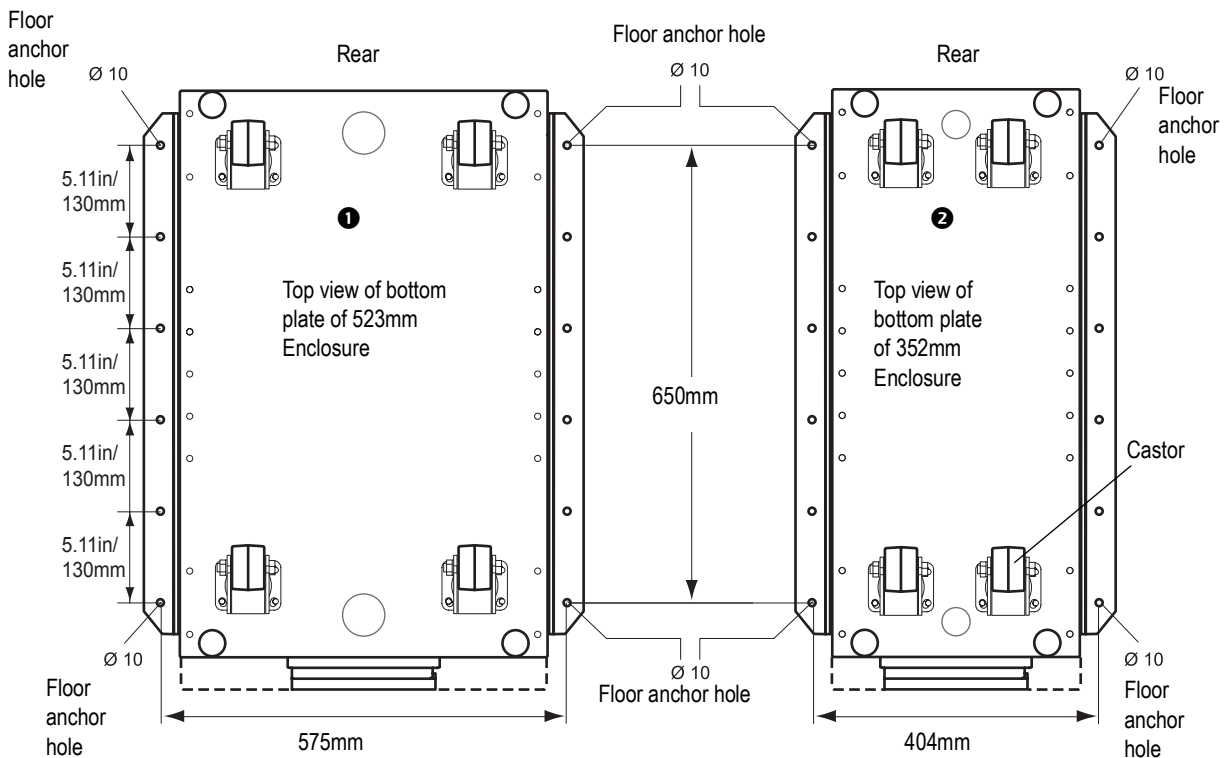
## Drilling floor holes for floor anchoring



Note

If your UPS installation requires floor anchoring and battery securing, the UPS installation must be anchored to the floor, re-using the brackets that secured the Enclosure to the pallets during shipment. For easy determination of where to drill the holes, refer to the applicable drawings below indicating hole positions and size.

## Hole positions for floor anchors (stand-alone Enclosures)



- ❶ Refer to this drawing for floor anchor positions for 523mm Enclosures.
- ❷ Refer to this drawing for 352mm Enclosures.



Recommended minimum number of floor bolts per Enclosure: 4 (1 in each corner).  
Recommended floor bolt size: 8mm.



Floor Anchoring procedure described in the *Installation* section of this manual.

# Operating Environment

## Operating conditions



Note

Install the UPS in an indoor, temperature-controlled area, free of conductive contaminants.

Temperature Range: 0° to 40°C	Keep Ventilated Front-to-Rear Airflow (see space considerations)	Relative Humidity: <95% Non-condensing	No Conductive Dust or Corrosive Fumes	Altitude derating table: 1000m: 100% load 1500m: 95% load 2000m: 91% load 2500m: 86% load 3000m: 82% load

## Heat dissipation

UPS size	kW at fully charged batteries
10kVA	0.5
15kVA	0.75
20kVA	1.0
30kVA	1.5
40kVA	2.0

## Audible noise

	10-20kVA	30-40kVA
Audible noise at 100% load: (1m from the UPS)	64dBA	67dBA

### Recommended source connections



The UPS must be supplied from a 400Y/230V 4W + GND 50Hz source.



**CAUTION!**

Verify clockwise phase-rotation (L1, L2, L3) and make sure a neutral connection is present.



See also *Recommended Wiring for a 30°C Temperature Environment*.



**Recommended current protection**



**Note**

AC output over-current protection and AC output disconnect must be provided by the customer.

Dual/ single mains configu- ration	Connec- tion	10kVA	15kVA	20kVA	30kVA	40kVA	Notes
Dual	Mains input	20A breaker (30kA)	35A breaker (30kA)	50A breaker (30kA)	63A breaker (30kA)	80A breaker (30kA)	1+2
Dual	Bypass input	20A breaker (30kAIC)	35A breaker (30kA)	50A breaker (30kA)	63A breaker (30kA)	80A breaker (30kA)	1+2
Single	Mains/ Bypass input	20A breaker (30kA)	35A breaker (30kA)	50A breaker (30kA)	63A breaker (30kA)	80A breaker (30kA)	1+2
Any	Output	20A Class gL (gG) fuse	35A Class gL (gG) fuse	50A Class gL (gG) fuse	63A Class gL (gG) fuse	80A Class gL (gG) fuse	3

**Note 1:**

If the available fault current of the installation is below 30kA, a lower Icu-rated breaker can be used.

**Note 2:**

For breaker settings, refer to below tables listing available overload currents.

**Note 3:**

Maximum rating of a single fuse configuration if the internal bypass must be protected during a load short circuit. Selectivity is not ensured by the configuration.

**Minimum setting of breakers for 10kVA UPS**

<b>Overload Event</b>	<b>Mains input</b>	<b>Bypass input</b>	<b>Output</b>	<b>Duration</b>	<b>Notes</b>
Internal fault	2kA	1.7kA	9kA	<10ms	1
800% overload bypass operation	-	121.5A	121.5A	500ms	
150% overload normal/battery operation	-	-	22.8A	30s	
125% overload normal/battery operation	-	-	19A	60s	
Continuously	16.4A	16.7A	16.7A	∞	

**Note 1:** For the output value, the short-circuit-level is indicated.

**Minimum setting of breakers for 15kVA UPS**

<b>Overload Event</b>	<b>Mains input</b>	<b>Bypass input</b>	<b>Output</b>	<b>Duration</b>	<b>Notes</b>
Internal fault	2.1kA	1.8kA	9kA	<10ms	1
800% overload bypass operation	-	182A	182A	500ms	
150% overload normal/battery operation	-	-	34.2A	30s	
125% overload normal/battery operation	-	-	25.4A	60s	
Continuously	24.6A	25.1A	25.1A	∞	

**Note 1:** For the output value, the short-circuit-level is indicated

**Minimum setting of breakers for 20kVA UPS**

<b>Overload Event</b>	<b>Mains input</b>	<b>Bypass input</b>	<b>Output</b>	<b>Duration</b>	<b>Notes</b>
Internal fault	2.5kA	2.3kA	9kA	<10ms	1
800% overload bypass operation	-	244A	244A	500ms	
150% overload normal/battery operation	-	-	45.6A	30s	
125% overload normal/battery operation	-	-	38A	60s	
Continuously	32.5A	33.4A	33.4A	∞	

**Note 1:** For the output value, the short-circuit-level is indicated.

**Minimum setting of breakers for 30kVA UPS**

<b>Overload Event</b>	<b>Mains input</b>	<b>Bypass input</b>	<b>Output</b>	<b>Duration</b>	<b>Notes</b>
Internal fault	3 kA	2.3kA	14 kA	<10 ms	1
800% overload bypass operation	-	365A	365A	500ms	
150% overload normal/battery operation	-	-	68.4A	30s	
125% overload normal/battery operation	-	-	57A	60s	
Continuously	49.2A	50.1A	50.1A	∞	

**Note 1:** For the output value, the short-circuit level is indicated.

**Minimum setting of breakers for 40kVA UPS**

Overload Event	Mains input	Bypass input	Output	Duration	Notes
Internal fault	3 kA	2.3kA	14 kA	<10 ms	1
800% overload bypass operation	-	487A	487A	500ms	
150% overload normal/battery operation	-	-	91.2A	30s	
125% overload normal/battery operation	-	-	76A	60s	
Continuously	65.6A	66.9A	66.9A	∞	

**Note 1:** For the output value, the short-circuit level is indicated.

**Recommended phase-conductor sizes for a 30°C temperature environment**

UPS/[mm <sup>2</sup> ] sizes	Mains input [mm <sup>2</sup> ]	AC output [mm <sup>2</sup> ]	DC input [mm <sup>2</sup> ] 70°C Wire
10kVA	2.5	2.5	6
15kVA	6	6	10
20kVA	10	10	16
30kVA	16	16	35
40kVA	25	25	50



**Note**

Use Molex lug type or equivalent, and crimp to manufacturer’s specifications.



**WARNING!**

At 100% non-linear load (EN50091-3 standard), the neutral shall be rated for 200% phase current.

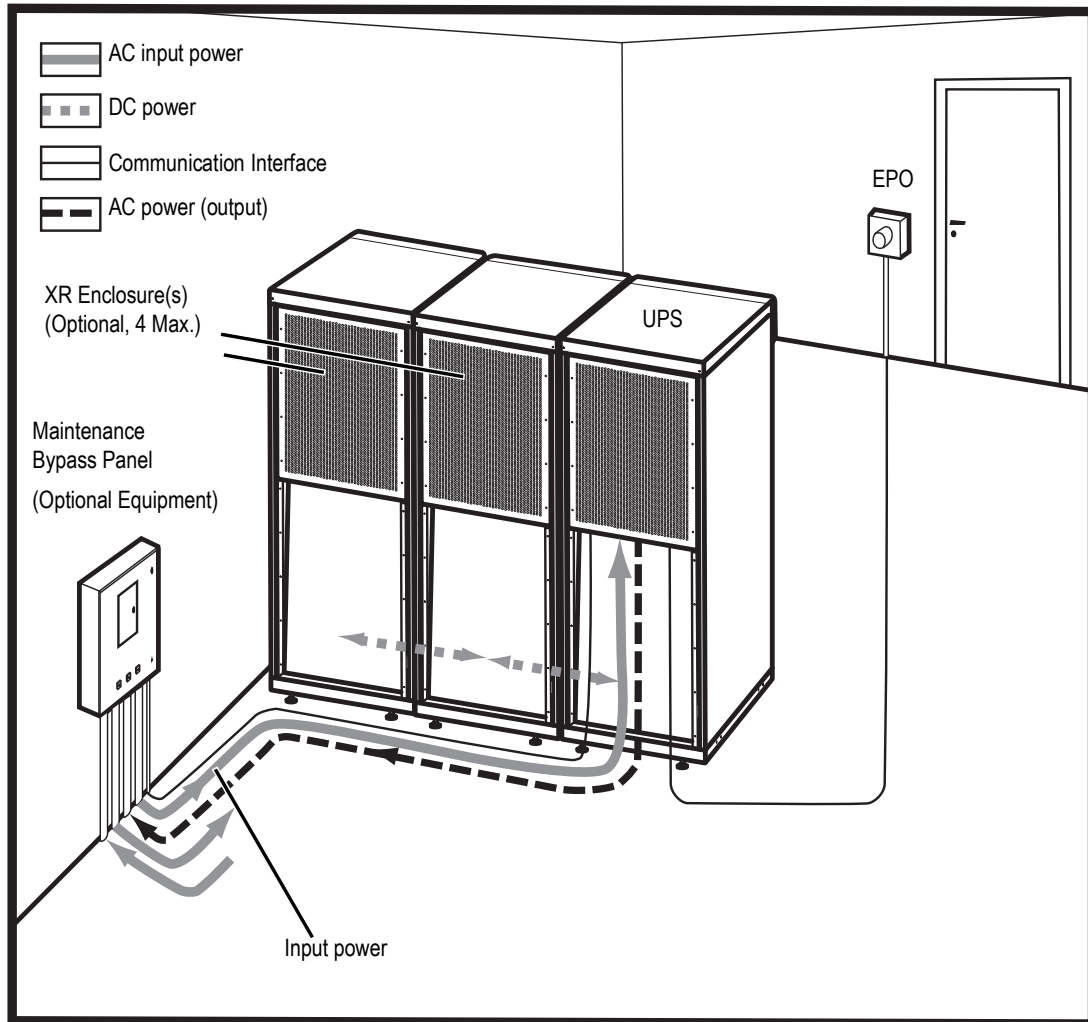
## EPO switch wiring

The UPS must be connected to either a dry contact or a 24V<sub>DC</sub> Emergency Power Off (EPO) switch.



See *EPO wiring options* in this manual.

# Basic Wiring Overview



Note

APC recommends that you request a wiring diagram from the electrician after completed electrical installation. A wiring diagram is useful for subsequent service and troubleshooting.

# Site Preparation Checklist

---

## System components. Have you –

- determined minimum battery runtime requirement based on load (kW and kVA) and selected the correct XR Enclosures (ISVTBXR2B6S, ISVTXR2B6S, ISVTBXR6B6S, ISVTXR6B6S) and Battery Unit (SYBT1). Always install a whole Battery Module (4 Battery Units) at a time.
- considered Service Program or Extended Warranty plan?

## Site Preparation. Have you –

- considered correct operating space, floor strength (see *Installation Space Requirements*), cooling, and environment (see *Operating Environment*).
- reviewed all electrical work to determine wiring requirements?

## Arrival Preparation. Have you –

- verified that space and handling equipment are available to receive the UPS/XR Enclosure? (Including unloading the UPS/XR Enclosure from the delivery truck).
- scheduled an authorized electrician to install the UPS/XR Enclosure?

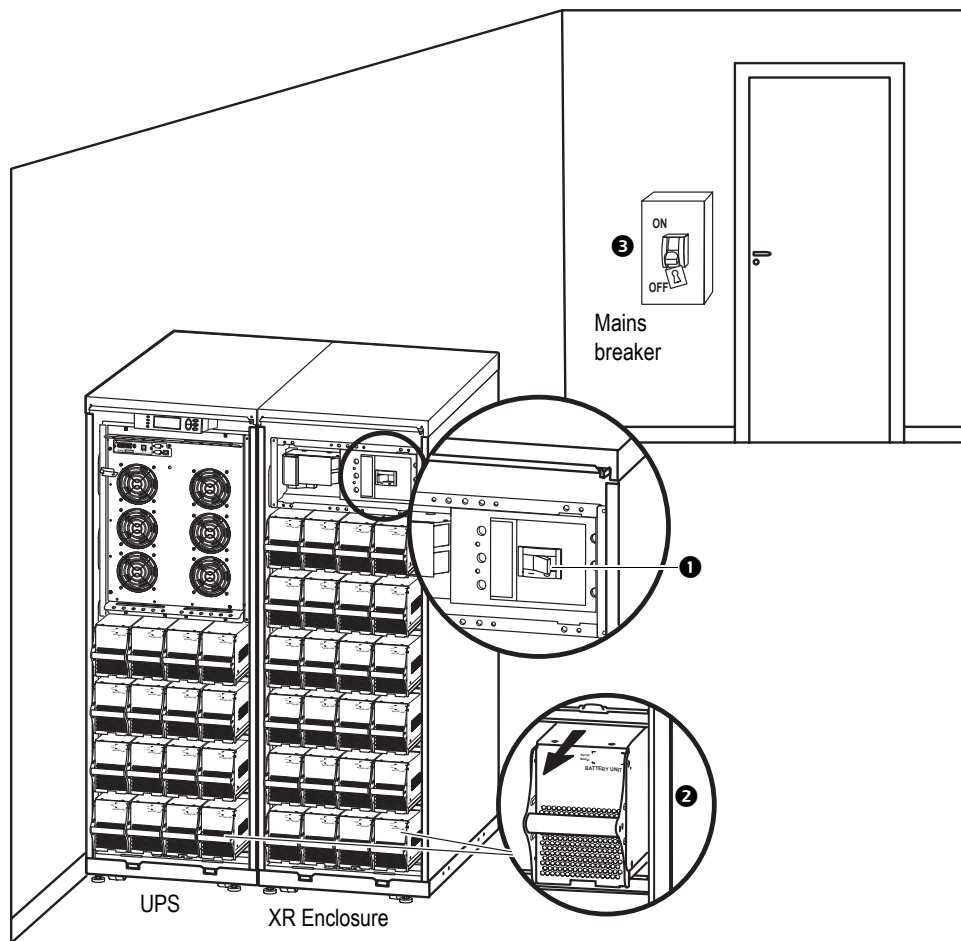
# Electrical Installation

## Total-Power-Off Procedure



### WARNING!

Risk of electric shock - parts inside the UPS and XR Enclosure are energized from the battery supply even when the AC power is disconnected. Before electrical installation begins, follow the Total-Power-Off procedure to completely de-energize the system.



- 1 Set the DC disconnect switch on the XR Enclosure (if available) to the OFF position.
- 2 Remove all batteries from the system, or, alternatively, pull out all batteries to the red disconnect line shown on the battery. To ensure solid stability, do not pull batteries out beyond the red disconnect line unless completely removing them from the Enclosure.
- 3 Set the mains breaker to the OFF or LOCKED-OUT position. If the UPS has dual mains supply, set both supplies to the OFF or LOCKED-OUT position.





**WARNING!**

Correct lock-out procedures at mains breaker must be followed. If necessary, install a padlock.

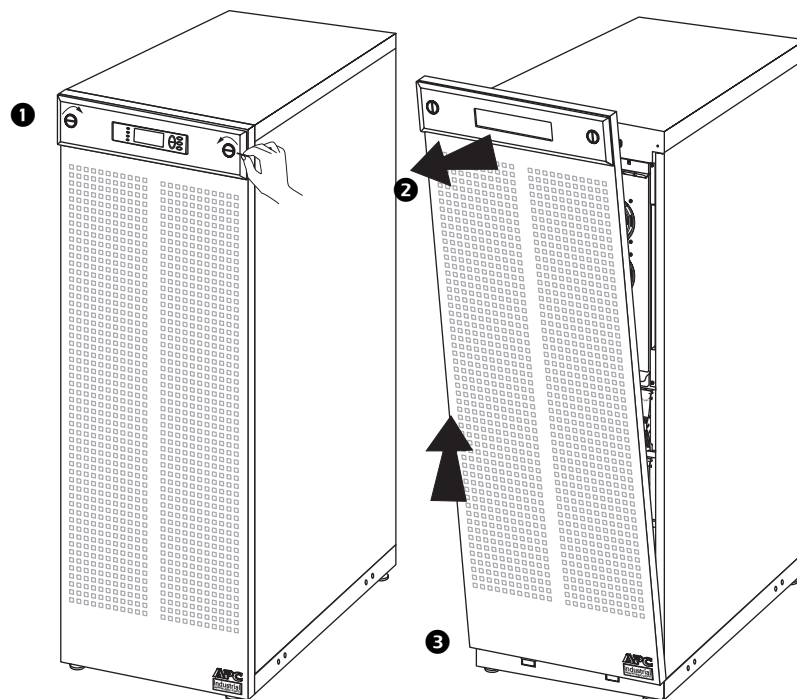


Refer to *Seismic Anchoring* in the Electrical Installation Manual for instructions on how to remove Seismic Battery Brackets (if applicable).

# Front Panel

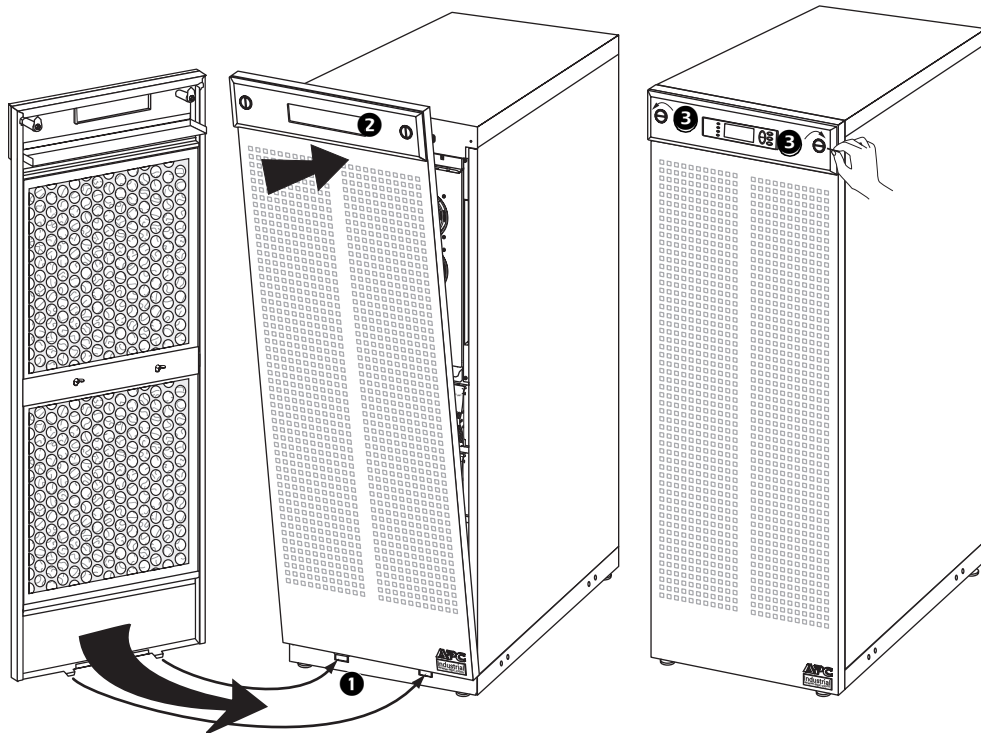
---

## Removal



- ❶ To remove a Front Panel, use a coin or similar, and turn the 2 black lock devices away from the Display to horizontal level.
- ❷ Pull the Front Panel outwards to disengage the locking device at the top of the Enclosure.
- ❸ Lift the Front Panel free of the two slots at the bottom of the Enclosure.

## Installation



- ❶ To install a Front Panel, insert the two guide taps positioned at the bottom of the Front Panel into the two slots at the bottom of the Enclosure.
- ❷ Push the Front Panel against the Enclosure to engage the locking device at the top of the Enclosure.
- ❸ To secure the Front Panel, use a coin or similar, and turn the 2 black lock devices away from the Display to horizontal level.

# System-Electrical Information

**WARNING!**



All electrical power and power control wiring must be installed by a qualified electrician, and must comply with local and national regulations for maximum power rating.

UPS ratings	10kVA 8 kW	15kVA 12 kW	20kVA 16 kW	30kVA 24 kW	40kVA 32kW
Input voltage (V)/per phase	3x400/ 230V	3x400/ 230V	3x400/ 230V	3x400/ 230V	3x400/ 230V
Input current (nominal) (A)	12.4	18.6	24.8	37.2	49.6
Maximum input current (continuous, at minimum mains voltage)/per phase	13.6	20.5	27.3	40.9	54.6
Input current protection for mains source or single mains supply (external to UPS, not supplied) (A)	3x20	3x35	3x50	3x63	3x80
Input current protection for bypass source in dual mains configuration (external to UPS, not supplied) (A)	20	35	50	63	80
Input frequency (Hz) range	40-70	40-70	40-70	40-70	40-70
Output voltage (on line). (V) Minimum and maximum values (+/- 1%)	3x400/ 230V	3x400/ 230V	3x400/ 230V	3x400/ 230V	3x400/ 230V
Output current (nominal) (A)	14.4	21.7	28.9	43.3	57.7
Maximum output current (in bypass only at 110% overload per phase)	15.9	23.8	31.8	47.6	63.5
Bypass input current (A) (in bypass only at 110% overload, per phase)	15.9	23.8	31.8	47.6	63.5
Neutral output current (with 100% switch mode load) (A)	25.0	37.5	50.0	75.0	100.0
Output current protection (external to UPS, not supplied) (A)	20	35	35	63	80
Output frequency range (Hz)	50/60	50/60	50/60	50/60	50/60
DC overcurrent protection and disconnect switch for external safety: (A)	22	33	44	66	88
DC voltage rating of the battery supply	+/- 192	+/- 192	+/- 192	+/- 192	+/- 192
Maximum available battery short-circuit current.	10 kA	10 kA	10 kA	10 kA	10 kA

## Source connections



**WARNING!**

The UPS must be supplied from a 400Y/230V 4W + GND 50Hz source.



**CAUTION!**

Verify clockwise phase-rotation (L1, L2, L3) and make sure a neutral connection is present.



For recommended source connections, see *The Site Preparation* section.



**CAUTION!**

The installation must comply with all local and national codes.

# Wiring

---



Note

Make sure the UPS is in its location of use before wiring begins.



**CAUTION!**

Verify clockwise phase-rotation (L1, L2, L3) and make sure a neutral connection (N) is present.



Note

Power terminal lug diameter: minimum 6mm.  
Torque value: 5Nm



Note

If floor anchoring is required, attach the Floor Anchoring Brackets to the UPS now.  
Follow step 1 under *Floor Anchoring (Option)*.



Note

Please leave a copy of your wiring diagram with the customer to facilitate maintenance and troubleshooting.

# Input/Output Wiring – Single Mains (default)

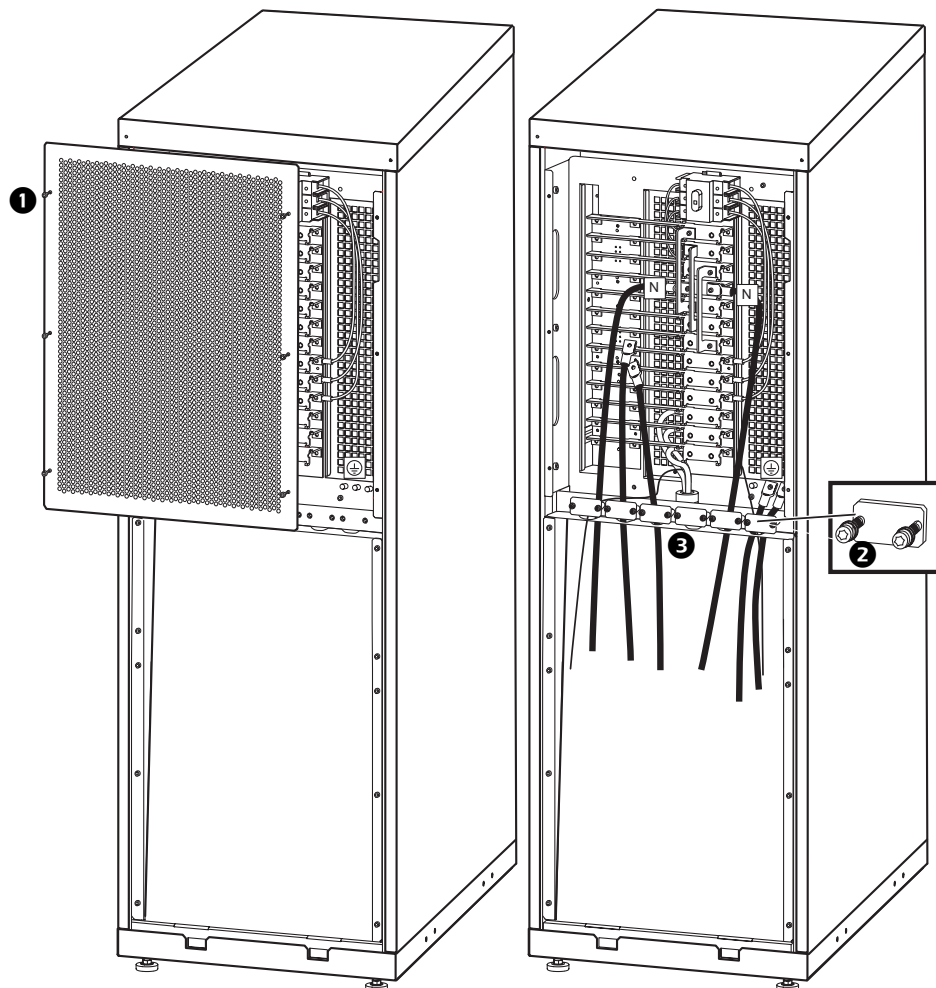
The UPS is designed for both single (default) and dual mains installations. Carry out the *Total-Power-Off* Procedure, and follow the below steps to install the UPS in a single-mains installation.



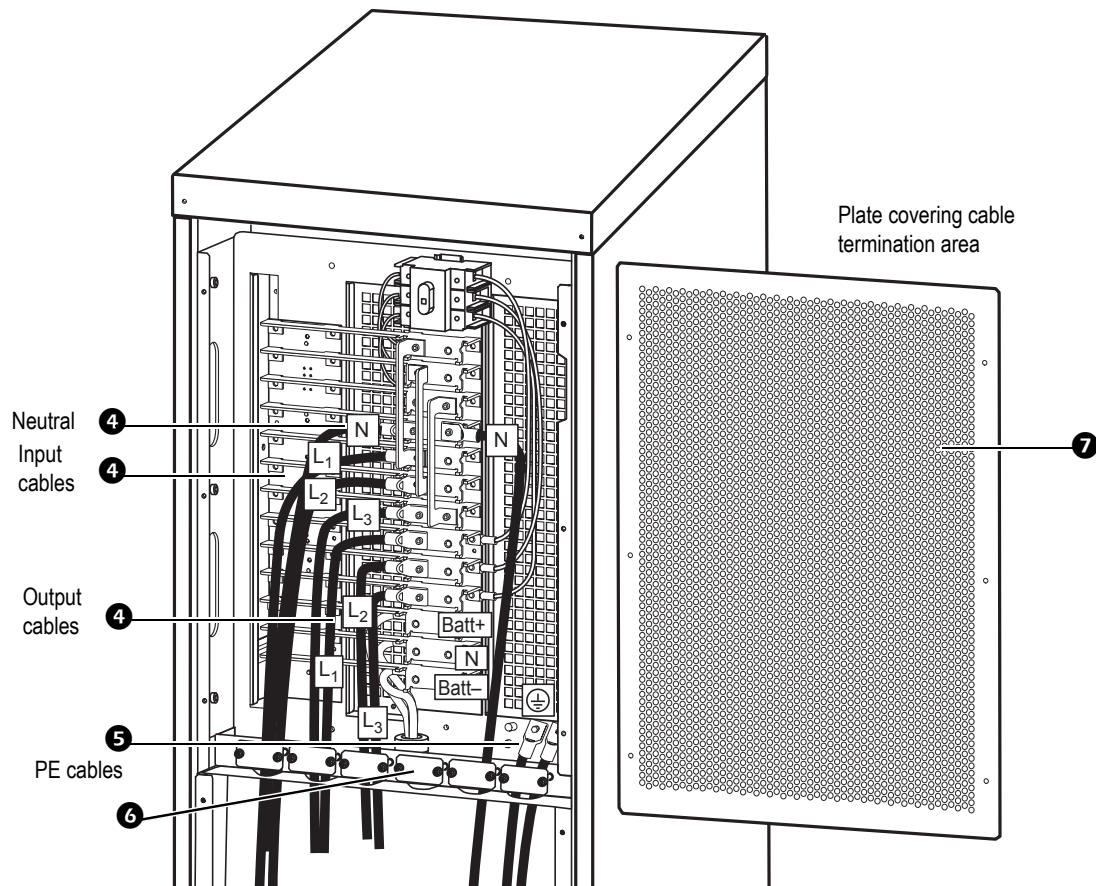
The illustrations show a 523mm Enclosure, but installation procedures are identical for 352mm Enclosures).

Note

## Wiring procedure - single mains



- 1 Loosen the 6 M4x13 screws from the cover for the cable termination area on the rear, and remove.
- 2 Loosen the cable strain relief.
- 3 Route cables from the slanted back plate through the punched bracket and up into cable termination area.



- ④ Attach input cable lugs on L1, L2 and L3 input busbars (left side in the UPS), using the provided M6 hex screws. Attach output cable lugs on L1, L2 and L3 output busbars, using the provided M6 hex screws. Attach N x 2 where shown, using the provided hex screws.
- ⑤ Attach PE x 2 where shown, using the provided hex screws.
- ⑥ Fasten the cable strain relief.
- ⑦ Reinstall cover plate using the 6 M4x13 screws from step ①



# Input/Output Wiring – Dual Mains

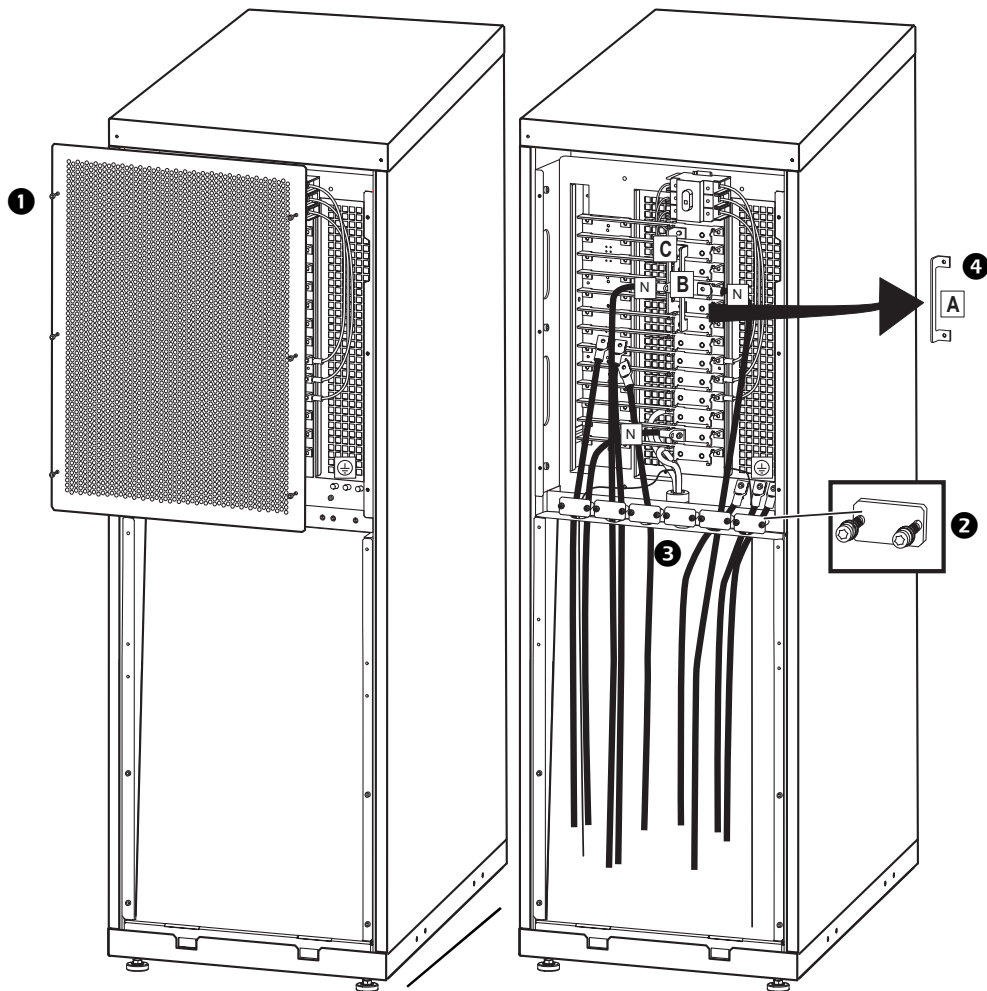
The UPS is designed for single mains installation as default. Carry out the *Total Power Off Procedure*, and follow the below instructions to install the UPS in a dual-mains installation



Note

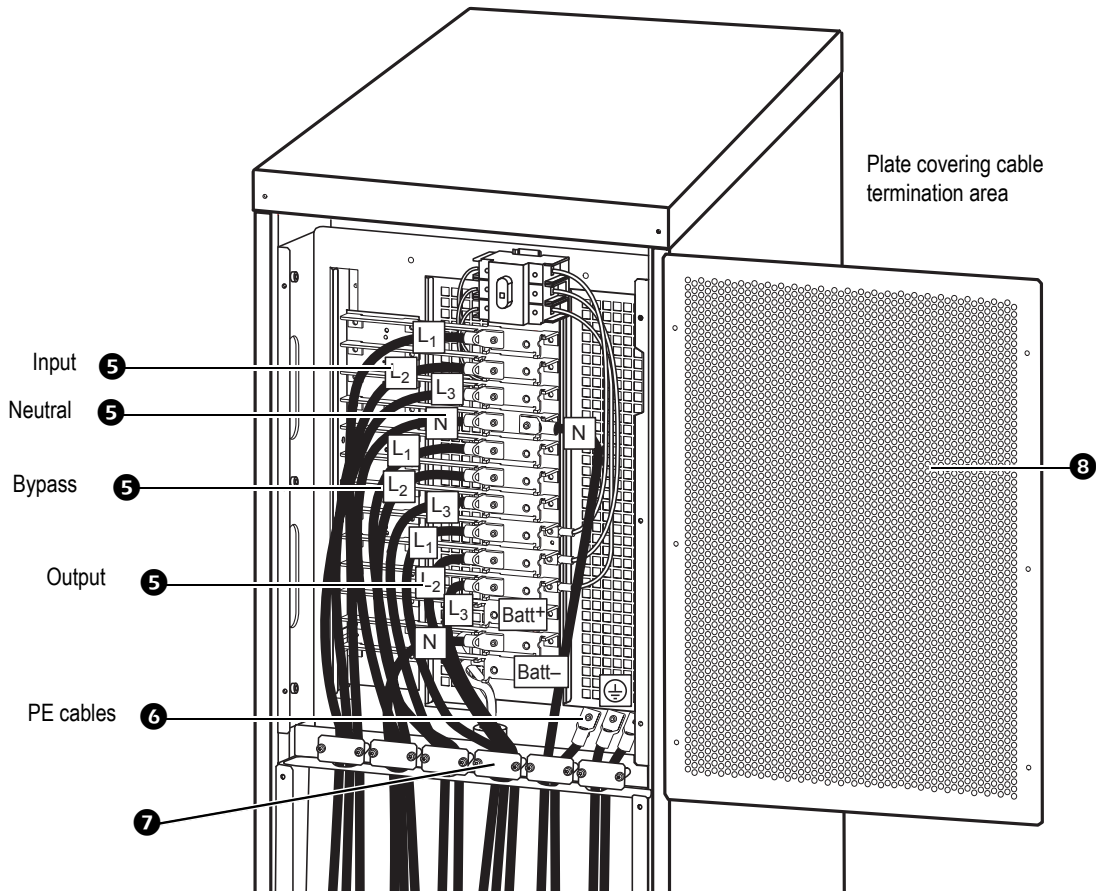
The illustrations show 523mm Enclosures, but the installation procedures are identical for 352mm Enclosures).

## Wiring procedure - dual mains



- 1 Loosen the 6 M4x13 screws from the plate covering the cable termination area, and remove.
- 2 Loosen the cable attachment bracket.
- 3 Route cables from the slanted back plate through the punched bracket and up into cable termination area.

- 4 Remove the 2 M6x12 screws from Brackets A, B, and C and remove all 3 brackets.



- 5 Attach the input cable lugs to input busbars L1, L2, L3, using the provided hex screws. Attach the bypass cable lugs to L1, L2, L3 bypass busbars, using the provided hex screws. Attach the output cable lugs to the L1, L2, L3 output busbars and attach, using the provided hex screws. Attach N x 3 where shown, using the provided hex screws.
- 6 Attach PE x 3 where shown.
- 7 Fasten the cable strain relief.
- 8 Reinstall cover plate using the 6 M4x13 screws from step 1.

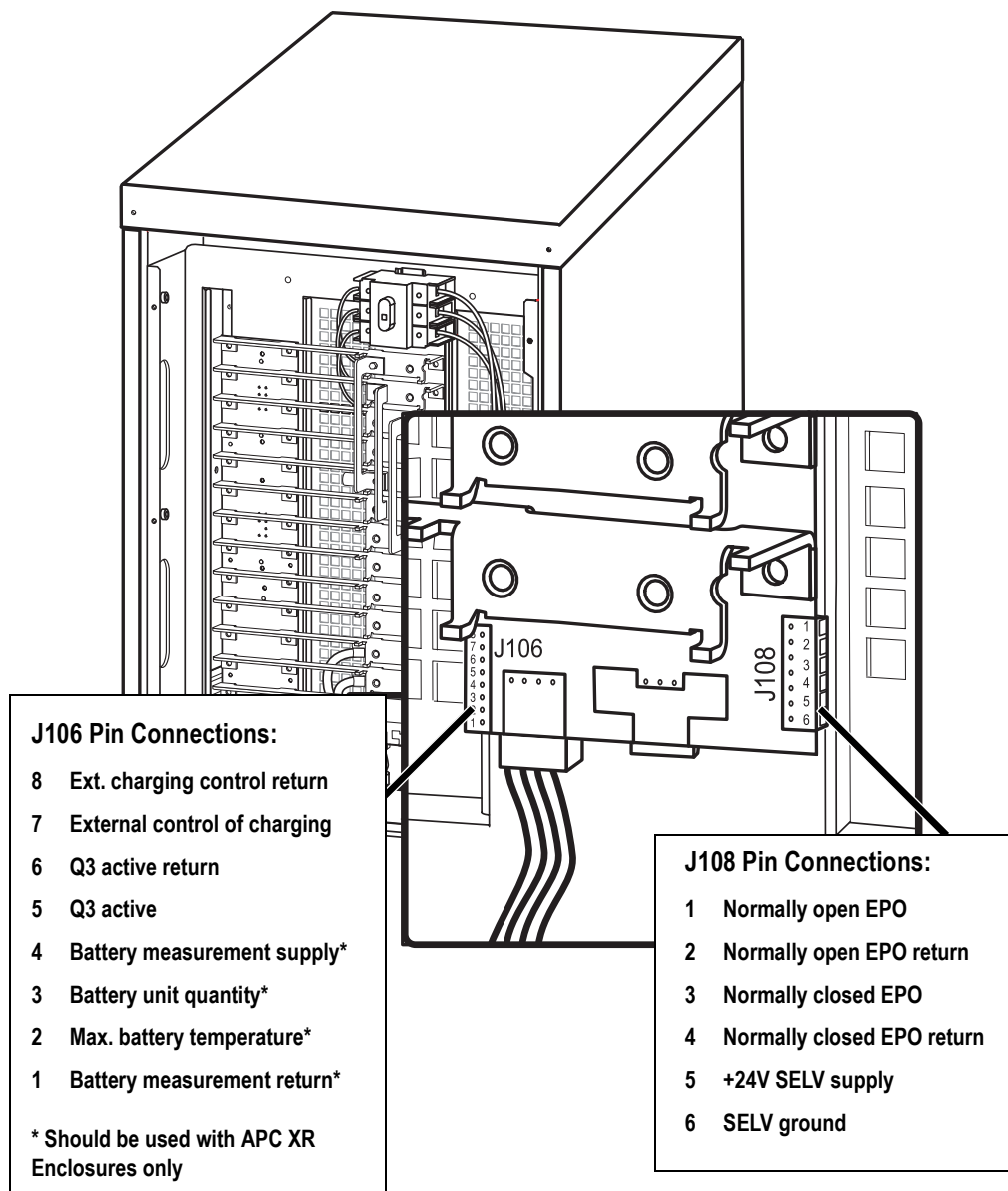
# Communication Wiring to EPO and Optional Equipment



Use only 1-1½mm<sup>2</sup> copper wire for the connection of the Emergency Power Off (EPO) and other optional equipment.

Note

## Pin connections J106 (XR Enclosure) and J108 (EPO)



### Pin connections J106 (UPS) to J200 (XR Enclosure - option)

Pins 1 through 4 are for battery measurement (only applicable to APC XR Enclosures).

Pins 5 & 6 are for external maintenance bypass Q3. When Q3 is closed, signals are fed back to the UPS controller.

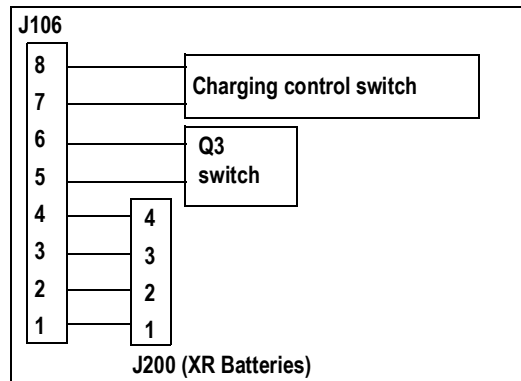
Pins 7 & 8 are for external charge control. When 7 & 8 are closed, the UPS charges batteries with a pre-defined percentage (0-100%) of the maximum charging power. To be used in generator applications, or if special codes requires control of charging.



Note

When connecting the Q3 auxiliary signal, use gold-plated N/C auxiliary switch on Q3.

### XR Enclosure, APC Maintenance Bypass Panel, and Generator Control wiring



Pins 1 through 4 are for battery measurement (only applicable to APC XR Enclosures).

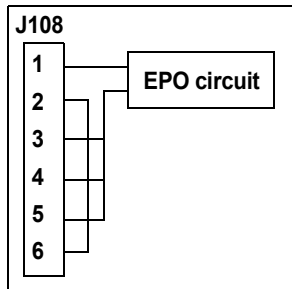
Pins 5 through 6 are for external maintenance bypass Q3.

Pins 7 and 8 are for external charge control.

**Pin connections J108 (for EPO wiring options)**

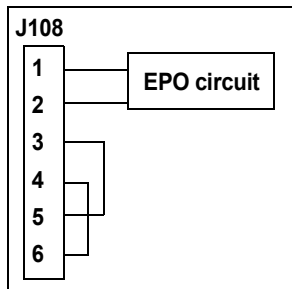
Connect the EPO cable, using one of the following 4 wiring configurations.

**1: Dry Contracts  
Normally Open**



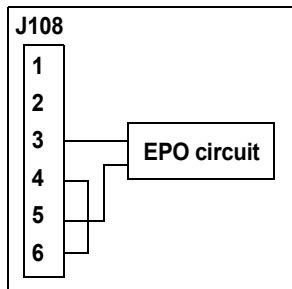
EPO is activated when pin 1 is connected to pins 3,4 and 5

**2: +24V Normally Open**



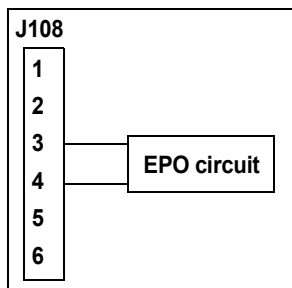
EPO is activated when an isolated SELV 24VDC voltage is supplied on pin 1 with reference to pin 2.

**3: Dry Contacts  
Normally Closed**



EPO is activated when a connection from pin 3 to pin 5 is opened

**4: +24V Normally  
Closed**



EPO is activated when a SELV 24VDC voltage removed from pin 3 with reference to pin 5



See *EPO wiring options* for setup.

# General Charge Setting

---

The general charge setting is set to 100% as default.

From the Display it is possible to adjust the charge levels to 75%, 50%, 25%, 10% and 0%.

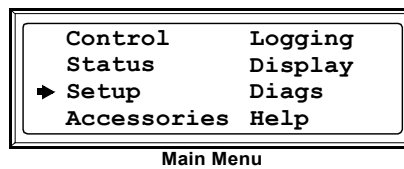
If the charge limit input is active (J106, pins 7,8) the UPS will reduce the maximum General Charge effect (100%) to the programmed value.



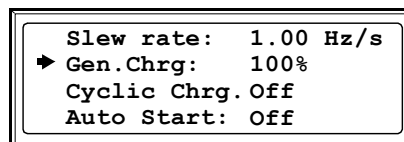
See *XR Enclosure, MBP, and Generator Control Wiring* for overview of J106.

## Charge setting procedure

- 1 From the main menu of the display, select *Set-up*, and press ENTER.



- 2 Select System, and press ENTER
- 3 Use the arrow keys to get to *Gen.Chrg: 100%*, and press ENTER.



- 4 An arrow will appear to the left of Gen.Chrg. Use the UP arrow on the display to go to the desired level of charge effect. Select ENTER.

Now, when the charge limit input is active, the UPS will charge to the new setting.

# Leveling Feet

---

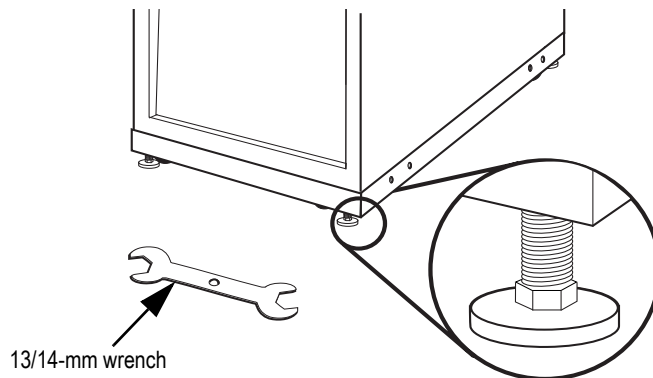


Note

Verify that the installation has been electrically wired before setting the leveling feet.

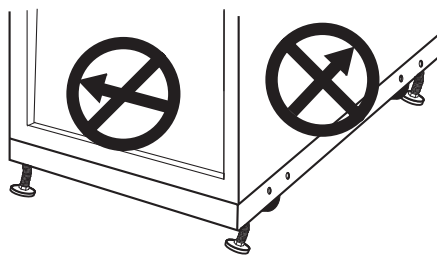
## Setting the leveling feet

Set the leveling feet to ensure the UPS is horizontal when it is in its final operating position. Use a 13/14-mm wrench (shipped with UPS) to adjust all 4 leveling feet from front to back, and left to right, until the pads make solid contact with the floor. Use a level tube to check the Enclosure is horizontal.



### CAUTION!

To avoid equipment damage, do not push or pull the UPS after the leveling feet have been lowered.



Remember to install the Front Panel. See *Front Panel* section for details.

If Battery Securing is required, carry out this procedure prior to installing the Front Panel.

# Floor Anchoring (option)

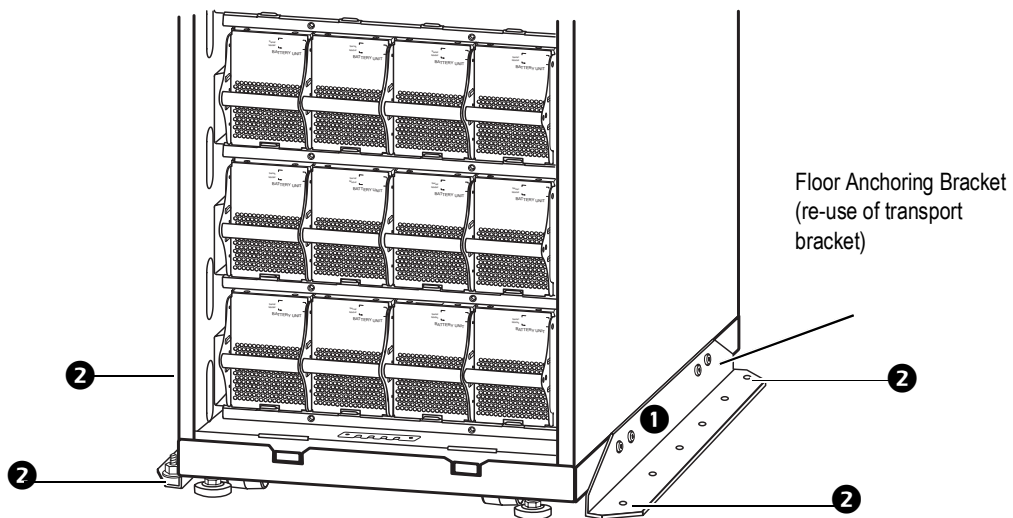


Floor anchoring is an option. If your installation does not include this option, proceed to the *Front Panel Installation* section.

## Floor anchoring of stand-alone systems

In earthquake areas, it is recommended that the installation be bolted to the floor, and that the batteries be secured in the Enclosure by the Battery Securing Brackets.

- 1 For floor anchoring, use the 2 transport brackets that were used to secure the UPS to the pallet during transport.



- 2 Align the 4 holes in the bottom angle of the Floor Anchoring Bracket on either side of the UPS to the pre-drilled holes in the floor



Floor anchoring procedures identical for both 352mm and 523mm UPS Enclosures.

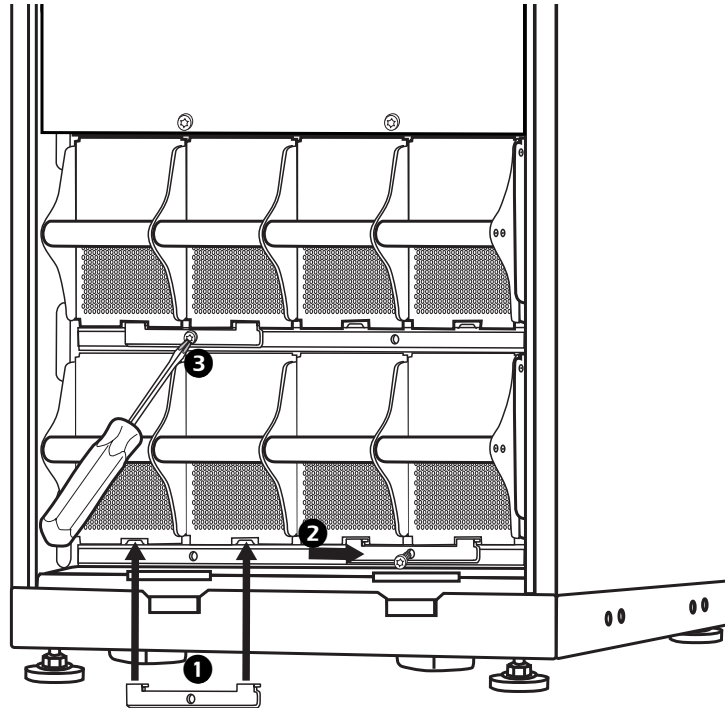


See *Floor Anchoring Preparation* section and install a minimum of 4 anchors on each Enclosure (minimum size: M8) where shown, following the specifications provided by the manufacturer.



## Battery securing

Attach two Battery Securing Brackets per Battery Module in such a way that one bracket secures two Battery Units.



- ❶ Insert the two tabs of the Battery Securing Bracket into the slots of the two Battery Units.
- ❷ Push the Battery Securing Bracket to the right and push it downwards. Align the Battery Securing Bracket hole with the hole in the battery shelf.
- ❸ Use one M6 screw to fasten the Battery Securing Bracket to the shelf.
- ❹ Use same procedure to secure all batteries in the Enclosure.



Note

Attach two Battery Securing Brackets per Battery Module in such a way that one Battery Securing Bracket secures two Battery Units.

# Wiring Verification Procedure

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Do not connect batteries in the UPS.

Note

Use following procedure to verify that the UPS has been wired properly:

- 1. If your installation includes an XR Enclosure, make sure that the DC breaker (if available) is in the OFF position and that both 125A fuses are removed from the XR Enclosure.
- 2. Check that the power wiring is torqued to 45 lbf in/5Nm.
- 3. If your installation includes an XR Enclosure, remount the 125A fuses in the XR Enclosure and check that the DC breaker (if available) on the XR Enclosure is in the ON position.
- 4. Apply mains power to the system input and measure the voltage at the input terminal block. Record voltages between:

**Mains Input:**

L1 and N: \_\_\_\_\_ L2 and N: \_\_\_\_\_ L3 and N: \_\_\_\_\_

**Bypass Input (for dual mains installations):**

L1 and N: \_\_\_\_\_ L2 and N: \_\_\_\_\_ L3 and N: \_\_\_\_\_



Measured voltage must be between 175 and 274. If not, STOP! Verify correct wiring (correct location of N) from the power source to the input wiring connections.

Note

- 5. Check that the display is powered up.
- 6. Select the Status Menu on the display, and check that all input voltages are present.
- 7. Verify L1, L2, L3 clockwise phase rotation using a phase-rotation meter.
- 8. Test the EPO switch. The system should shut down completely. If not, check the connections and the EPO switch to ensure that they are installed and functioning correctly. For installations with XR Battery Enclosures, the DC disconnect should trip to the OFF position at the EPO test (if applicable).
- 9. Successful completion of steps 1 through 5 indicates that the UPS wiring is correctly installed and functioning correctly. Turn off breakers and switches and shut down mains power to the system input. See *Total-Power-Off* Procedure.
- 10. Please leave a wiring diagram on site for service / technical support personnel.



**Note**

Refer to rear cover for contact numbers in other countries.

- 11. Reinstall all wiring access panels and Front Panels to the UPS.



**Note**

For instructions regarding any optional equipment, refer to product-specific manuals.

# Installation Site Checklist

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This checklist should be completed by the electrician after the wiring has been completed:

Installed at (company name, date, contact) \_\_\_\_\_

Name and telephone number of electrician: \_\_\_\_\_

UPS serial number: \_\_\_\_\_

Input Circuit Breaker size and type: \_\_\_\_\_

Output fuse size and type: \_\_\_\_\_

Location of protection devices (room): \_\_\_\_\_

Breaker ID: \_\_\_\_\_

EPO type: \_\_\_\_\_

Wire size and type: \_\_\_\_\_

Ground connection method and location: \_\_\_\_\_

Wiring diagram provided in the documentation storage area: \_\_\_\_\_

# LIMITED FACTORY WARRANTY

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The limited warranty provided by American Power Conversion Corporation (“APC”) in this Statement of Limited Factory Warranty applies only to Products you purchase for your commercial or industrial use in the ordinary course of your business.

## **APC product covered**

AIS® 3000.

## **Terms of warranty**

APC warrants that the Product shall be free from defects in materials and workmanship for a period of one (1) year from the date of start-up when APC authorized service personnel performed the start-up of the Product, or a maximum of 18 months from the date of Product shipment from APC, when APC authorized service personnel have not performed the start-up of the Product (“Warranty Period”). In the event that the Product fails to meet the foregoing warranty, APC shall repair or replace any defective parts, such repair or replacement to be without charge for on-site labor and travel if APC authorized personnel have conducted start-up of the Product. An APC Start-Up Service must be performed/completed by APC authorized service personnel or replacement of defective parts only will be covered. APC shall have no liability and no obligation to repair the installed Product if non-authorized personnel performed the start-up and such start-up caused the Product to be defective. Any parts furnished under this warranty may be new or factory-remanufactured. **Repair or replacement of a defective product or part thereof does not extend the original warranty period.**

## **Non-transferable warranty extends to first purchaser for use**

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

## **Assignment of warranties**

APC will assign to you any warranties which are made by manufacturers and suppliers of components of the APC Product and which are assignable. Any such warranties are assigned “AS IS” and APC makes **no representations** as to the effectiveness or extent of such warranties, assumes NO RESPONSIBILITY for any matters which may be warranted by such manufacturers or suppliers and extends no coverage under this Warranty to such components.

## **Drawings, descriptions**

APC warrants for the Warranty Period and on the terms of the Warranty set forth herein that the APC Product will substantially conform to the descriptions contained in the APC Official Published Specifications or any of the drawings certified and agreed to by an authorized APC representative, if applicable thereto (“Specifications”). It is understood that the Specifications are **not warranties of performance** and **not warranties of fitness for a particular purpose**.

## **Warranty claims procedure**

To obtain service under Warranty, contact APC Customer Support (see rear cover). You will need the model number of the Product, the serial number, and the date purchased. A technician will ask you to describe the problem. If it is determined that the Product will need to be returned to APC you must obtain a returned material authorization (RMA) number from APC Customer Support. Products that must be returned must have the RMA number marked on the outside of the package, and be returned with transportation charges prepaid. If it is determined by APC Customer Support that on-site repair of the Product is allowed, APC will arrange to have APC authorized service personnel dispatched to the Product location to repair or replace the Product at the discretion of APC.

## **Exclusions**

APC shall not be liable under the Warranty if its testing and examination discloses that the alleged defect in the product does not exist or was caused by your or any third person’s misuse, negligence, improper installation or testing, unauthorized attempts to repair or modify, or any other cause beyond the range of the intended use, or by accident, fire, lightning or other hazard.

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## APC Worldwide Customer Support

Customer support for this or any other APC product is available at no charge in any of the following ways:

- Visit the APC Web site to access documents in the APC Knowledge Base and to submit customer support requests.
  - **www.apc.com** (Corporate Headquarters)  
Connect to localized APC Web sites for specific countries, each of which provides customer support information.
  - **www.apc.com/support/**  
Global support searching APC Knowledge Base and using e-support.
- Contact an APC Customer Support center by telephone or e-mail.
  - Regional centers:

Direct InfraStruXure Customer Support Line	(1)(877)537-0607 (toll free)
APC headquarters U.S., Canada	(1)(800)800-4272 (toll free)
Latin America	(1)(401)789-5735 (USA)
Europe, Middle East, Africa	(353)(91)702000 (Ireland)
Japan	(0) 3 5434-2021
Australia, New Zealand, South Pacific area	(61) (2) 9955 9366 (Australia)

- Local, country-specific centers: go to **www.apc.com/support/contact** for contact information.

Contact the APC representative or other distributor from whom you purchased your APC product for information on how to obtain local customer support.

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