User manual

Single UPS
Integrated parallel UPS
Parallel UPS with SSC
Frequency converters
Static-switch cabinet
Introduction

Thank you for selecting an APC by Schneider Electric product to protect your electrical equipment.

The MGE™ Galaxy™ 7000 range has been designed with the utmost care. We recommend that you take the time to read this manual to take full advantage of the many features of your UPS (Uninterruptible Power Supply).

APC by Schneider Electric pays great attention to the environmental impact of its products. Measures that have made MGE™ Galaxy™ 7000 a reference in environmental protection include:

◗ the eco-design approach used in product development,
◗ the elimination of harmonic disturbances reinjected into the AC source,
◗ production in an ISO 14001 certified factory,
◗ recycling of the MGE™ Galaxy™ 7000 at the end of its service life.

To discover the entire range of APC by Schneider Electric products and the options available for the MGE™ Galaxy™ 7000 we invite you to visit our web site at: www.apc.com, or contact your local representative. APC by Schneider Electric.

All products in the MGE™ Galaxy™ 7000 range are protected by patents. They implement original technology not available to competitors of APC by Schneider Electric.

To take into account evolving standards and technology, equipment may be modified without notice. Indications concerning technical characteristics and dimensions are not binding unless confirmed by APC by Schneider Electric.

This document may be copied only with the written consent of Schneider Electric or its affiliated companies. Authorised copies must be marked MGE™ Galaxy™ 7000 user manual no. 3402084700.
Pictograms

Document

- Danger, these instructions are imperative
- Information, advice, help.
- Visual indication
- Action

Audio signal
- LED off
- LED flashing
- LED on
Safety

Safety rules

Safety of persons

The UPS must be installed in a room with restricted access, in compliance with standard IEC 60364-4-42. Only qualified personnel are authorised to enter this restricted access room.

A UPS has its own internal power source (the battery). Consequently, the power outlets may be energised even if the UPS is disconnected from the AC-power source.

Dangers voltage levels are present within the UPS. It should be opened exclusively by qualified service personne.

The UPS must be properly earthed.

The battery supplied with the UPS contains small amounts of toxic materials. Caution, replacement of the battery by a battery of the wrong type can result in an explosion.

To avoid accidents, the instructions below must be observed.

Never operate the UPS if the ambient temperature and relative humidity are higher than the levels specified in the documentation.

Never burn the battery (risk of explosion).

Do not attempt to open the battery (the electrolyte is dangerous for the eyes and skin).

Comply with all applicable regulations for the disposal of the battery.

Caution, wait for five minutes before opening the UPS to allow the capacitors to discharge.

Caution, there is high leakage current: the earthing conductor must be connected first and disconnected last.

The product must be installed on a non-inflammable surface (e.g. concrete).

Caution: battery replacement must be carried out by qualified personnel.

Isolate the UPS before working on the circuits upstream.

The UPS can only be used in a controlled environment.

Product safety

- Protection (circuit breaker/switch disconnector) must be installed upstream and be easily accessible.
- Never install the UPS near liquids or in an excessively damp environment.
- Never let a liquid or foreign body penetrate inside the UPS.
- Never block the ventilation grates of the UPS.
- Never expose the UPS to direct sunlight or a source of heat.
- When replacing battery cells, use the same type and number of cells.

Special precautions

- The UPS connection instructions contained in this manual must be followed in the indicated order.
- Check that the indications on the rating plate elles doivent correspondre à votre réseau électrique d'alimentation et à la consommation electrique réelle de l'ensemble des équipements connectés.
- If the UPS must be stored prior to installation, storage must be in a dry place.
- The admissible storage temperature range is -25°C to +45°C.
- If the UPS remains de-energised for a long period, we recommend that you energise the UPS for a period of 24 hours, at least once every month. This charges the battery, thus avoiding possible irreversible damage.
- The UPS is designed for normal climatic and environmental operating conditions concerning the altitude, ambient operating temperature, relative humidity and ambient transport and storage conditions.
- Using the UPS within the given limits guarantees its operation, but may affect the service life of certain components, particularly that of the battery and its autonomy. The maximum storage time of the UPS is limited due to the need to recharge its integrated battery.
- Unusual operating conditions may justify special design or protection measures:
  - harmful smoke, dust, abrasive dust,
  - humidity, vapour, salt air, bad weather or dripping,
  - explosive dust and gas mixture,
  - extreme temperature variations,
  - poor ventilation,
  - conductive or radiant heat from other sources,
  - cooling water containing acid or impurities which may cause scale, silt, electrolysis or corrosion of the converter parts exposed to water,
  - strong electromagnetic fields,
  - radioactive levels higher than those of the natural environment,
  - fungus, insects, vermin, etc.,
  - battery operating conditions.

- The UPS must always be installed in compliance with:
  - the requirements of standard IEC 60364-4-42: protection from thermal effects.
  - standard IEC 60364-4-41: protection against electric shock.
  - standard NFC 15-100 (in France).
  - the requirements of standard IEC 62040-1-2.
APC by Schneider Electric has implemented an environmental protection policy. Products are developed according to an eco-design approach.

**Substances**

This product does not contain CFCs, HCFCs or asbestos.

**Packing**

To improve waste treatment and facilitate recycling, separate the various packing components.

The cardboard we use comprises over 30% of recycled cardboard.

Sacks and bags are made of polyethylene.

Packing materials are recyclable and bear the appropriate identification symbol 🌱.

<table>
<thead>
<tr>
<th>Materials</th>
<th>Abbreviation</th>
<th>Number in the symbol</th>
</tr>
</thead>
<tbody>
<tr>
<td>Polyethylene terephthalate</td>
<td>PET</td>
<td>01</td>
</tr>
<tr>
<td>High-density polyethylene</td>
<td>HDPE</td>
<td>02</td>
</tr>
<tr>
<td>Polyvinyl chloride</td>
<td>PVC</td>
<td>03</td>
</tr>
<tr>
<td>Low-density polyethylene</td>
<td>LDPE</td>
<td>04</td>
</tr>
<tr>
<td>Polystyrene</td>
<td>PS</td>
<td>06</td>
</tr>
</tbody>
</table>

Follow all local regulations for the disposal of packing materials.

**End of life**

APC by Schneider Electric will process products at the end of their service life in compliance with local regulations.

APC by Schneider Electric works with companies in charge of collecting and eliminating our products at the end of their service life.

**Product**

The product is made up of recyclable materials.

Dismantling and destruction must take place in compliance with all local regulations concerning waste.

At the end of its service life, the product must be transported to a processing centre for electrical and electronic waste.

Make the product unusable by cutting the internal supply cables.

**Battery**

The product contains lead-acid batteries that must be processed according to applicable local regulations concerning batteries.

The battery may be removed to comply with regulations and in view of correct disposal.

The "Material Safety Data Sheets"(MSDS) for the batteries are available on our web site*.

(*) For more information or to contact the Product Environmental manager, use the "Environmental Request" form on the site: http://environment.apc.com
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1. Operation

1.1 Initial UPS start-up

Single or integrated parallel UPS alone

Connection of power and control cables must be carried out and checked by qualified personnel.

The upstream circuit breakers on the normal and bypass lines must be open.

The UPS must be shut down; the load is not supplied.

The doors of the cabinets must be open.

Before starting the sequence, the switches must be in the positions indicated below:

Connection of power and control cables must be carried out and checked by qualified personnel.

The upstream circuit breakers on the normal and bypass lines must be open.

The UPS must be shut down; the load is not supplied.

The doors of the cabinets must be open.

Before starting the sequence, the switches must be in the positions indicated below:

1. Close the upstream circuit breakers on the normal and bypass lines

The load is now supplied.

The "PFC" (1), "Inverter ON" (2) and "Load" (3) LEDs must be ON and green.

The load is now protected
1. Operation

Initial UPS start-up

UPS set up as a frequency converter

Connection of power and control cables must be carried out and checked by qualified personnel.
The upstream circuit breaker on the normal AC line must be open.
The UPS must be shut down; the load is not supplied.
The doors of the cabinets must be open.

Before starting the sequence, the switches must be in the positions indicated below:

**UPS cabinets**

<table>
<thead>
<tr>
<th>Switch</th>
<th>Position</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q1</td>
<td>Off</td>
</tr>
<tr>
<td>Q5N</td>
<td>Off</td>
</tr>
</tbody>
</table>

**Battery cabinet(s)**

<table>
<thead>
<tr>
<th>Circuit breaker</th>
<th>Position</th>
</tr>
</thead>
<tbody>
<tr>
<td>QF1</td>
<td>Off</td>
</tr>
</tbody>
</table>

1. Close the upstream circuit breaker on the normal AC line
2. Flip switch Q1 to ON
3. Switch the circuit breaker(s) QF1 to ON
4. Flip switch Q5N to ON
5. Check the presence of the UPS unit on the display
6. Press the Enter button
7. Close the doors.

The load is now protected.

The "PFC" (1), "Inverter ON" (2) and "Load" (3) LEDs must be ON and green.
1. Operation

Parallel UPS systems

integrated parallel UPS units in parallel without external bypass cabinet

Connection of power and control cables must be carried out and checked by qualified personnel.
The upstream circuit breakers on the normal and bypass lines must be open.
The UPS must be shut down; the load is not supplied.
The doors of the cabinets must be open.

Before starting the sequence, the switches of all the UPS units must be in the positions indicated below:

1 - Close the upstream circuit breakers on the normal and bypass lines
The load is now supplied.

On each UPS cabinet:
2 - Flip switch Q4S to ON
3 - Flip switch Q5N to ON

On a UPS cabinet:
4 - Check the presence of all UPS units on the display
5 - Press the Enter button

On each UPS cabinet:
6 - Flip switch Q3BP to OFF
7 - Flip switch Q1 to ON

Wait until the “PFC” LED (1) lights up green

Battery cabinet(s):
8 - Switch the circuit breaker(s) QF1 to ON
9 - Close the doors.
1. Operation

On each UPS cabinet:
10 - Press the ON button

The load is supplied by the UPS system when enough units are ready.

The load is now protected.

The ‘PFC’ (1), “Inverter ON” (2) and “Load” (3) LEDs must be ON and green.
1. Operation

Initial UPS start-up > Parallel UPS systems >

Integrated parallel UPS units in parallel with external bypass cabinet

Connection of power and control cables must be carried out and checked by qualified personnel.
The upstream circuit breakers on the normal and bypass lines must be open.
The UPS must be shut down; the load is not supplied.
Check that the handles of the Q3BP switch have been removed or locked.
The doors of the cabinets must be open.

Before starting the sequence, the switches must be in the positions indicated below:

1. Operation

On each UPS cabinet:
2 - Flip switch Q4S to ON
3 - Flip switch Q5N to ON

Repeat steps 2 to 3 on all the UPS units.

On a UPS cabinet:
4 - Check the presence of all UPS units on the display
5 - Press the Enter button

Check that the "Automatic bypass" LED (1) lights up green

External bypass cabinet:
6 - Flip switch Q5N ext to ON
7 - Flip switch Q3BP ext to OFF

On each UPS cabinet:
8 - Flip switch Q1 to ON

Wait until the "PFC" LED (2) lights up green

Battery cabinet(s):
9 - Switch the circuit breaker(s) QF1 to ON

10 - Close the doors.
1. Operation

Initial UPS start-up > Parallel UPS systems > integrated parallel UPS units in parallel with external bypass cabinet

On each UPS cabinet:
11 - Press the ON button

The load is supplied by the UPS system when enough units are ready.
The load is now protected.

The ‘PFC’ (1), “Inverter ON” (2) and “Load” (3) LEDs must be ON and green.
1. Operation

Initial UPS start-up > Parallel UPS systems >

**UPS set up as a parallel frequency-converter system**

*Connection of power and control cables must be carried out and checked by qualified personnel.*

The circuit breakers upstream of the normal AC line must be open.
The UPS must be shut down; the load is not supplied.
The doors of the cabinets must be open.

**Before starting the sequence, the switches must be in the positions indicated below:**

<table>
<thead>
<tr>
<th>UPS cabinets</th>
<th>Battery cabinet(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q1</td>
<td>QF1</td>
</tr>
<tr>
<td>ON</td>
<td>OFF</td>
</tr>
<tr>
<td>OFF</td>
<td></td>
</tr>
</tbody>
</table>

1. Close the upstream circuit breaker on the normal AC lines

On each UPS cabinet:
2. Flip switch Q1 to ON
3. Switch the circuit breaker(s) QF1 to ON
4. Flip switch QSN to ON

On a UPS cabinet:
5. Check the presence of all UPS units on the display
6. Press the Enter button
7. Close the doors.

On each UPS cabinet:
8. Press the ON button

The load is supplied by the UPS system when enough units are ready.
The load is now protected.

The "PFC" (1), "Inverter ON" (2) and "Load" (3) LEDs must be ON and green.
1. Operation

Parallel UPS units with SSC (static-switch cabinet)

Connection of power and control cables must be carried out and checked by qualified personnel.
The upstream circuit breakers on the normal and bypass lines must be open.
The UPS must be shut down; the load is not supplied.
The doors of the cabinets must be open.

Before starting the sequence, the switches must be in the following positions (see diagram opposite).

1 - Close the upstream circuit breakers on the normal and bypass lines.

The load is now supplied.

On each UPS cabinet:
4 - Flip switch Q1 to ON

Check that the "PFC" LED (3) lights up green

Battery cabinet(s):
5 - Switch the circuit breaker(s) QF1 to ON

On each UPS cabinet:
6 - Flip switch Q5N to ON

Repeat from step 4 for all the UPS units.

7 - Check the presence of all UPS units on the display of one UPS.
8 - Press the Enter button

SSC cabinet:
9 - Flip switch Q3BP to OFF

10 - Close the doors.
1. Operation

On each UPS cabinet:
11 - Press the ON button

The load is supplied by the UPS system when enough units are ready.

The load is now protected.

UPS cabinets:
The "PFC" (1), "Inverter ON" (2) and "Load" (3) LEDs must be ON and green.

Static-switch cabinet:
The "Automatic bypass" (4) and "Load" (5) LEDs must be ON and green.
1. Operation

Parallel UPSs with SSC cabinet and SSC maintenance cabinet

Connection of power and control cables must be carried out and checked by qualified personnel.
The upstream circuit breakers on the normal and bypass lines must be open.
The UPS must be shut down; the load is not supplied.
The doors of the cabinets must be open.

Before starting the sequence, the switches must be in the following positions (see diagram opposite).

UPS cabinets

Battery cabinet(s)

Bypass AC

Normal AC

Load

Static-switch cabinet

Battery cabinet(s)

UPS cabinets

 SSC cabinet:
2 - Flip switch Q4S to ON
3 - Flip switch Q5N to ON

Check that the “AC Bypass” (1) and (2) “Load” LEDs light up green

On each UPS cabinet:
4 - Flip switch Q1 to ON

Check that the “PFC” LED (3) lights up green

Battery cabinet(s):
5 - Switch the circuit breaker(s) QF1 to ON

On each UPS cabinet:
6 - Flip switch Q5N to ON

SSC maintenance cabinet:
7 - Flip switch QN to ON

Repeat from step 4 for all the UPS units.
8 - Check the presence of all UPS units on the display
9 - Press the Enter button

SSC cabinet:
10 - Flip switch Q3BP to OFF
11 - Close the doors.
1. Operation

On each UPS cabinet:
12 - Press the ON button

The load is supplied by the UPS system when enough units are ready.

The load is now protected.

UPS cabinets:
The "PFC" (1), "Inverter ON" (2) and "Load" (3) LEDs must be ON and green.

SSC cabinet:
The "Automatic bypass"(4) and "Load" (5) LEDs must be ON and green.
1. Operation

1.2 Setting up the UPS or SSC

Human-machine interface

Graphical display
Load protected LED
Minor or Environmental fault LED
Load not protected LED
Help/Buzzer off button
Function keys
Main menu button
OFF button
ON button
Load LED
Inverter LED
Battery LED
Bypass LED
PFC LED

Pictograms

Vertical selection
Other selection
Enter / Confirm
Next page
Previous page
Details
History
Return to previous display

Delete
Measurements
Increase
Decrease
Save
Alarm
Details on each module
1. Operation

Setting up the UPS or SSC >

Menu structure
1. Operation

Changing the display language

Available languages

- German
- English
- Korean
- Danish
- Spanish
- Finnish
- French
- Greek
- Dutch
- Indonesian
- Italian
- Mandarin
- Norwegian
- Polish
- Portuguese
- Russian
- Swedish
- Thai
- Turkish

Selecting the displayed language

The UPS must be ON.

1 - Press the Main menu button (1)
2 - Press the Next button (2) until Settings is highlighted
3 - Press the Enter button (3)
4 - Press the Next button (2) until Languages is highlighted
5 - Press the Enter button (3)
6 - Press the Next button (2) until the desired language is highlighted
7 - Press the Save button (3)
8 - Press the ESC (Escape) button (4)
1. Operation

Setting the date and time

For event time-stamping, the correct date and time must be set. The UPS must be ON.

1 - Press the Main menu button (1)
2 - Press the Next button (2) until Settings is highlighted
3 - Press the Enter button (3)
4 - Press the Next button (2) until Date and time is highlighted
5 - Press the Enter button (3)
6 - Press the Decrease (4) and Increase (5) buttons until the desired date is displayed.
7 - Press the Next button (2)
8 - Repeat operations 6 and 7 to set the month, year, hour, minutes and seconds.
9 - Press the Save button (3)
10 - Press the ESC (Escape) button (4)

Setting the dry contacts

Accessing the parameters

The UPS must be ON.

The default password (factory set) is:

∅ ∅ ∅
### Available commands and status conditions

By default, contacts are not set up

#### Available status conditions (outputs: O1 to O6):

<table>
<thead>
<tr>
<th>Available status conditions</th>
<th>Type of installation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Unitary</td>
</tr>
<tr>
<td>General alarm</td>
<td>✓</td>
</tr>
<tr>
<td>Load on normal AC input</td>
<td>✓</td>
</tr>
<tr>
<td>Load on battery power</td>
<td>✓ *</td>
</tr>
<tr>
<td>Load on bypass AC input</td>
<td>✓</td>
</tr>
<tr>
<td>Battery shutdown warning</td>
<td>✓ *</td>
</tr>
<tr>
<td>Overloads</td>
<td>✓</td>
</tr>
<tr>
<td>Battery fault</td>
<td>✓ *</td>
</tr>
<tr>
<td>PFC fault</td>
<td>✓</td>
</tr>
<tr>
<td>Inverter fault</td>
<td>✓</td>
</tr>
<tr>
<td>Charger fault</td>
<td>✓</td>
</tr>
<tr>
<td>Bypass fault</td>
<td>✓</td>
</tr>
<tr>
<td>Battery temperature fault</td>
<td>✓ *</td>
</tr>
<tr>
<td>Ventilation fault</td>
<td>✓</td>
</tr>
<tr>
<td>Bypass source outside tolerances</td>
<td>✓</td>
</tr>
<tr>
<td>Fuse fault</td>
<td>✓</td>
</tr>
<tr>
<td>EPO activated</td>
<td>✓</td>
</tr>
<tr>
<td>Battery circuit breaker(s) open</td>
<td>✓ *</td>
</tr>
<tr>
<td>Phase rotation fault</td>
<td>✓</td>
</tr>
<tr>
<td>System in maintenance position</td>
<td>✓</td>
</tr>
<tr>
<td>Load protected</td>
<td>✓</td>
</tr>
<tr>
<td>Environment fault</td>
<td>✓</td>
</tr>
<tr>
<td>Check the UPS</td>
<td>✓</td>
</tr>
</tbody>
</table>

* States available in installations with batteries
** Overload of AC Bypass static switch
*** State available in 800 kVA SSC cabinet only
## 1. Operation

### Setting up the UPS or SSC > Setting the dry contacts >

**Available commands** (inputs: I1 to I4):

<table>
<thead>
<tr>
<th>Type of installation</th>
<th>Unitary</th>
<th>Parallel</th>
<th>SSC **</th>
<th>Frequency converter</th>
</tr>
</thead>
<tbody>
<tr>
<td>Available commands (inputs: I1 to I4):</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Batt. room vent. fault</td>
<td>✓ *</td>
<td>✓ *</td>
<td>✓ *</td>
<td>✓ *</td>
</tr>
<tr>
<td>Desynchronise AC bypass and inverter</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Limit battery charge current during operation on genset power</td>
<td>✓ *</td>
<td>✓ *</td>
<td>✓ *</td>
<td>✓ *</td>
</tr>
<tr>
<td>Limit input power during operation on genset power</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Safe transfer to inverter</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Safe transfer to AC bypass</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Force transfer to AC bypass</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Force transfer to inverter</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Battery-block fault</td>
<td>✓ *</td>
<td>✓ *</td>
<td>✓ *</td>
<td>✓ *</td>
</tr>
<tr>
<td>- Customer alarm 1</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>- Customer alarm 2</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>- Customer alarm 3</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>- Customer alarm 4</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

* Commands available in installations with batteries
** SSC cabinet commands are sent simultaneously to all UPS and/or SSC cabinets in the installation
1. Operation

Setting up a contact

Set-up example for an output contact.

It is necessary to first access the parameters (See “Accessing the parameters”, page 22.)
The procedure is identical for an input contact.

1. Operation

Setting up a contact

Set-up example for an output contact.

It is necessary to first access the parameters (See “Accessing the parameters”, page 22.)
The procedure is identical for an input contact.

1 - Press the Next button (1) until Output is highlighted
2 - Press the Enter button (2)
3 - Press the Next button (3) until the contact to be set is highlighted
4 - Press the Enter button (2)
5 - Press the Next button (3) until the desired status condition is highlighted
6 - Press the Enter button (2)
7 - Press the Decrease (1) and Increase (3) buttons until the desired delay is displayed
8 - Press the Enter button (2)
9 - Press the Save button (2)
10 - Press the Next button (1) until Yes is highlighted
11 - Press the Enter button (2)
12 - Press the ESC (Escape) button (4)

Other available settings

<table>
<thead>
<tr>
<th>Settings</th>
<th>Possible choices</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contrast</td>
<td>0 to 100% in 10% steps</td>
</tr>
<tr>
<td>Buzzer volume</td>
<td>0 to 100% in 10% steps</td>
</tr>
<tr>
<td>Temperature units</td>
<td>°C or °F</td>
</tr>
<tr>
<td>Main screen</td>
<td>Default main screen, Alarms, Load measurements (1) or (2), Battery measurements, Normal AC measurements, Bypass AC measurements</td>
</tr>
<tr>
<td>Output voltage</td>
<td>+/- 3% in 0.5 V steps</td>
</tr>
<tr>
<td>Password</td>
<td>New password (the default value is 000)</td>
</tr>
</tbody>
</table>
1. Operation

1.3 Personalising the UPS

Accessing personalisation parameters

The door must be open
The UPS must be ON.

Before starting, the UPS must be in maintenance mode.

1 - Press the Main menu button (1)
2 - Press the Next button (2) until Settings is highlighted
3 - Press the Enter button (3)
4 - Press the Next button (2) until Personalisation is highlighted
5 - Press the Enter button (3)
6 - Press the Decrease (4) and Increase (5) buttons until the first digit of the password is displayed.
7 - Press the Next button (2)
8 - Repeat operations 6 and 7 to set the second and third digits of the password.
9 - Press the Enter button (3)

The default password (factory set) is:
1. Operation

Personalising the UPS

Other available personalisation commands

Most personalisation settings lead to UPS restart.

Before starting the personalisation sequence, the UPS must be transferred to the manual bypass (load supplied via the bypass AC source).

### Standard personalisation functions

<table>
<thead>
<tr>
<th>Setting</th>
<th>Factory set-up</th>
<th>Other possible choices</th>
</tr>
</thead>
<tbody>
<tr>
<td>Automatic start</td>
<td>Disabled</td>
<td>Enabled</td>
</tr>
<tr>
<td>Battery-test interval**</td>
<td>1 month</td>
<td>never, 7 days, 1 month, 2 months, 6 months</td>
</tr>
<tr>
<td>Load level warning*</td>
<td>100 %</td>
<td>40 to 100% in 10% steps</td>
</tr>
</tbody>
</table>

### Advanced personalisation functions

<table>
<thead>
<tr>
<th>Setting</th>
<th>Factory set-up</th>
<th>Other possible choices</th>
</tr>
</thead>
<tbody>
<tr>
<td>Output frequency</td>
<td>50 Hz</td>
<td>60 Hz</td>
</tr>
<tr>
<td>Inverter synch. speed</td>
<td>2 Hz/s</td>
<td>1 Hz/s</td>
</tr>
<tr>
<td>Transfer to bypass AC input</td>
<td>Always</td>
<td>Never</td>
</tr>
<tr>
<td>AC BP out of tol. transfer</td>
<td>Enabled</td>
<td>Disabled</td>
</tr>
<tr>
<td>Low-battery warning voltage coeff.**</td>
<td>20 %</td>
<td>40 %, 60 %, 80 %</td>
</tr>
<tr>
<td>Low-battery warning time**</td>
<td>4 minutes</td>
<td>0 to 10 minutes in 1-minute steps</td>
</tr>
<tr>
<td>Deep discharge ***</td>
<td>Disabled</td>
<td>Enabled</td>
</tr>
</tbody>
</table>

* Some personalisation functions may not be available depending on your installation.

** These personalisation settings are dynamic and do not require the UPS to be transferred to manual bypass.

*** Battery discharge beyond the permitted limit leading to irreversible damage to the battery; this personalisation setting is dynamic and does not require the UPS to be transferred to manual bypass.

After the personalisation sequence, the UPS must be transferred back to normal AC power, See “Transferring the UPS back to normal AC power”, page 35.
2. Maintenance

2.1 Isolating an installation

Single or integrated parallel UPS alone

The UPS must be ON.

UPS cabinet
1 - Press the OFF button for 3 seconds.

The load is supplied with bypass AC power and is not protected.

UPS cabinet
2 - Flip the circuit breaker(s) QF1 to OFF

The batteries are no longer charged.

UPS cabinet
3 - Open the door.

4 - Flip switch Q3BP to ON

5 - Flip switch Q5N to OFF

6 - Flip switch Q1 to OFF

7 - Flip switch Q4S to OFF

The load is now supplied with bypass AC power.
2. Maintenance

Isolating an Installation

Parallel UPS systems

integrated parallel UPS units in parallel without external bypass cabinet

The UPS must be ON.

First UPS cabinet
1 - Press the OFF button for 3 seconds.
   The load is still supplied and protected by the other UPS units.
2 - Open the door.

Battery cabinet(s)
4 - Flip the circuit breaker(s) QF1 to OFF

First UPS cabinet
5 - Flip switch Q1 to OFF
6 - Flip switch Q4S to OFF
Wait until the display and LEDs go off.

The load is still supplied and protected by the other UPS units.

Last UPS cabinet
7 - Press the OFF button for 3 seconds.
The load is supplied with bypass AC power and is not protected.
8 - Open the door.
9 - Flip switch Q3BP to ON
10 - Flip switch Q5N to OFF

Battery cabinet(s):
11 - Flip the circuit breaker(s) QF1 to OFF

Last UPS cabinet
12 - Flip switch Q4S to OFF
13 - Flip switch Q1 to OFF
2. Maintenance

Isolating an installation > Parallel UPS systems > integrated parallel UPS units in parallel without external bypass cabinet >

The load is supplied with bypass AC power and is not protected.
2. Maintenance

Isolating an installation > Parallel UPS systems

integrated parallel UPSs in parallel with external bypass cabinet

The UPS must be ON.
At the end of this procedure, the load will be supplied with bypass AC power and is not protected.

On each UPS cabinet:
1 - Press the OFF button for 3 seconds.
The load is supplied with bypass AC power and is not protected.
2 - Open the door.

On each UPS cabinet:
5 - Flip switch Q5N to OFF

Battery cabinet(s):
6 - Flip the circuit breaker(s) QF1 to OFF

On each UPS cabinet
7 - Flip switch Q1 to OFF
8 - Flip switch Q4S to OFF

The load is now supplied via the external bypass cabinet.
2. Maintenance

Isolating an installation > Parallel UPS systems >

UPS set up as a frequency converter

The UPS must be ON.
At the end of this procedure, the load is no longer supplied with AC power.

First UPS cabinet
1 - Press the OFF button (1) for 3 seconds
The load is supplied and protected by the other UPS unit.
If there is no other UPS unit, the load is no longer supplied.
2 - Open the door.

Battery cabinet(s)
3 - Flip the circuit breaker(s) QF1 to OFF

First UPS cabinet
4 - Flip switch Q5N to OFF
5 - Flip switch Q1 to OFF

Battery cabinet(s)
6 - Press the OFF button (1) for 3 seconds
The load is no longer supplied

Last UPS cabinet
7 - Flip the circuit breaker(s) QF1 to ON

Battery cabinet(s)
8 - Flip switch Q1 to OFF
9 - Flip switch Q5N to OFF
2. Maintenance

Parallel UPS units with SSC (static-switch cabinet)

The UPS must be on or have been restarted.
At the end of this procedure, the load is supplied via the bypass AC input.

Static-switch cabinet
1. Press the OFF button
2. Check that all the UPS units are OFF on the display

The load is supplied with bypass AC power and is not protected.

Static-switch cabinet

3. Open the door.

UPS cabinets

Battery cabinet(s)

Cabinet

SSC

Q1 Q5N Q3BP

Q1 ON OFF

Q5N OFF ON

Q3BP OFF ON

UPS

Q1

Q5N

Q3BP

Static-switch cabinet

4. Flip switch Q3BP to ON
5. Flip switch Q5N to OFF
6. Flip switch Q4S to OFF

On each UPS cabinet
7. Flip switch Q1 to OFF

Battery cabinet(s)

8. Flip the circuit breaker(s) QF1 to OFF

On each UPS cabinet
9. Flip switch Q1 to OFF

The load is supplied with bypass AC power.
2. Maintenance

Isolating an installation > Parallel UPS systems >

Parallel UPSs with SSC cabinet and SSC maintenance cabinet

The UPS must be on or have been restarted.
At the end of this procedure, the load is supplied via the bypass AC input.

Static-switch cabinet
1 - Press the OFF button
2 - Check that all the UPS units are OFF on the display

The load is supplied with bypass AC power and is not protected.

UPS → Static-switch cabinet

3 - Open the door.

UPS cabinets

Battery cabinet(s)

Cabinet SSC

Cabinet SSC main

4 - Flip switch Q3BP to ON
5 - Flip switch Q5N to OFF
6 - Flip switch Q4S to OFF

On each UPS cabinet
7 - Flip switch Q5N to OFF

Battery cabinet(s)

8 - Flip the circuit breaker(s) QF1 to OFF

On each UPS cabinet
9 - Flip switch Q1 to OFF

The load is supplied with bypass AC power.
2. Maintenance

2.2 Transferring the UPS back to normal AC power

Single or integrated parallel UPS alone

The doors of the cabinets must be open.

Before starting the sequence, the switches must be in the positions indicated below:

**UPS cabinet**

1. Close the upstream circuit breakers on the normal and bypass lines

2. Flip switch Q4S to ON

3. Flip switch Q5N to ON

4. Check that the load is powered

5. Check that the "Bypass" LED (2) is ON and green

**Integrated parallel UPS unit only:**

6. Check the presence of the UPS unit on the display

7. Press the Enter button

8. Check that the load is powered

**UPS cabinet:**

9. Flip switch Q3BP to OFF

10. Flip switch Q1 to ON

Wait until the "PFC" LED (1) lights up green

**Battery cabinet(s):**

11. Flip the circuit breaker(s) QF1 to ON

12. Close the doors.

**UPS cabinet:**

13. Press the ON button

The load is now protected

The "PFC" (1), "Inverter ON" (2) and "Load" (3) LEDs must be ON and green.
2. Maintenance

Transferring the UPS back to normal AC power > Single or integrated parallel UPS alone >

UPS set up as a frequency converter

The doors of the cabinets must be open.

Before starting the sequence, the switches must be in the positions indicated below:

UPS cabinets

<table>
<thead>
<tr>
<th>Q1</th>
<th>Q5N</th>
</tr>
</thead>
<tbody>
<tr>
<td>ON</td>
<td>ON</td>
</tr>
</tbody>
</table>

UPS cabinet

<table>
<thead>
<tr>
<th>Q1</th>
<th>Q5N</th>
</tr>
</thead>
<tbody>
<tr>
<td>OFF</td>
<td>OFF</td>
</tr>
</tbody>
</table>

Battery cabinet(s)

<table>
<thead>
<tr>
<th>QF1</th>
</tr>
</thead>
<tbody>
<tr>
<td>OFF</td>
</tr>
</tbody>
</table>

Battery cabinet

- 1 - Close the upstream circuit breaker on the normal AC line
- 2 - Flip switch Q1 to ON

Wait until the "PFC" LED (1) lights up green

Battery cabinet(s):

- 3 - Flip the circuit breaker(s) QF1 to ON
- 4 - Flip switch Q5N to ON
- 5 - Check the presence of the UPS unit on the display
- 6 - Press the Enter button
- 7 - Close the doors.

UPS cabinet:

- 8 - Press the ON button

The load is now protected.

The "PFC" (1), "Inverter ON" (2) and "Load" (3) LEDs must be ON and green.
Parallel UPS systems

integrated parallel UPS units in parallel without external bypass cabinet

The doors of the cabinets must be open.

Before starting the sequence, the switches of all the UPS units must be in the positions indicated below:

**UPS cabinets**

<table>
<thead>
<tr>
<th>Switch</th>
<th>Position</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q1</td>
<td>OFF</td>
</tr>
<tr>
<td>Q4S</td>
<td>OFF</td>
</tr>
<tr>
<td>Q3BP</td>
<td>ON</td>
</tr>
<tr>
<td>Q5N</td>
<td>ON</td>
</tr>
</tbody>
</table>

**Battery cabinet**

<table>
<thead>
<tr>
<th>Circuit Breaker</th>
<th>Position</th>
</tr>
</thead>
<tbody>
<tr>
<td>QF1</td>
<td>OFF</td>
</tr>
</tbody>
</table>

1. Close the upstream circuit breakers on the normal and bypass lines

The load is now supplied.

**UPS cabinets**

<table>
<thead>
<tr>
<th>Switch</th>
<th>Position</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q1</td>
<td>OFF</td>
</tr>
<tr>
<td>Q4S</td>
<td>ON</td>
</tr>
<tr>
<td>Q3BP</td>
<td>OFF</td>
</tr>
<tr>
<td>Q5N</td>
<td>OFF</td>
</tr>
</tbody>
</table>

**Battery cabinet**

<table>
<thead>
<tr>
<th>Circuit Breaker</th>
<th>Position</th>
</tr>
</thead>
<tbody>
<tr>
<td>QF1</td>
<td>ON</td>
</tr>
</tbody>
</table>

2. Flip switch Q4S to ON
3. Flip switch Q5N to OFF

4. Check the presence of all UPS units on the display
5. Press the Enter button

**UPS cabinets**

<table>
<thead>
<tr>
<th>Switch</th>
<th>Position</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q1</td>
<td>OFF</td>
</tr>
<tr>
<td>Q4S</td>
<td>ON</td>
</tr>
<tr>
<td>Q3BP</td>
<td>OFF</td>
</tr>
<tr>
<td>Q5N</td>
<td>OFF</td>
</tr>
</tbody>
</table>

6. Flip switch Q3BP to OFF
7. Flip switch Q1 to ON

Wait until the “PFC” LED (1) lights up green

**Battery cabinet(s)**

8. Flip the circuit breaker(s) QF1 to ON
9. Close the doors.
2. Maintenance

Transferring the UPS back to normal AC power > Parallel UPS systems > integrated parallel UPS units in parallel without external bypass cabinet

On each UPS cabinet:
10 - Press the ON button

The load is supplied by the UPS system when enough units are ready.

The load is now protected.

The "PFC" (1), "Inverter ON" (2) and "Load" (3) LEDs must be ON and green.
2. Maintenance

Transferring the UPS back to normal AC power > Parallel UPS systems >

Check that the handles of the Q3BP switch have been removed or locked. The doors of the cabinets must be open.

### Before starting the sequence, the switches must be in the positions indicated below:

#### UPS cabinets

<table>
<thead>
<tr>
<th>Switch</th>
<th>Position</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q1</td>
<td>OFF</td>
</tr>
<tr>
<td>Q4S</td>
<td>OFF</td>
</tr>
<tr>
<td>Q3BP</td>
<td>OFF</td>
</tr>
<tr>
<td>QSN</td>
<td>ON</td>
</tr>
</tbody>
</table>

#### Battery cabinet(s)

<table>
<thead>
<tr>
<th>Circuit Breaker</th>
<th>Position</th>
</tr>
</thead>
<tbody>
<tr>
<td>QF1</td>
<td>OFF</td>
</tr>
</tbody>
</table>

#### External bypass cabinet

<table>
<thead>
<tr>
<th>Circuit Breaker</th>
<th>Position</th>
</tr>
</thead>
<tbody>
<tr>
<td>QF1 ext</td>
<td>ON</td>
</tr>
<tr>
<td>QSN ext</td>
<td>OFF</td>
</tr>
</tbody>
</table>

#### Cabinet

1. Close the upstream circuit breakers on the normal and bypass lines

The load is now supplied.

### On each UPS cabinet:

1. Flip switch Q4S to ON
2. Flip switch QSN to ON

Repeat steps 2 to 3 on all the UPS units.

### On a UPS cabinet:

1. Check the presence of all UPS units on the display
2. Press the Enter button
3. Check that the "Automatic bypass" LED (1) lights up green

### External bypass cabinet:

1. Flip switch QSN ext to ON
2. Flip switch Q3BP ext to OFF

### On each UPS cabinet:

1. Flip switch Q1 to ON

Wait until the "PFC" LED (2) lights up green

### Battery cabinet(s):

1. Flip the circuit breaker(s) QF1 to ON
2. Close the doors.
2. Maintenance

Transferring the UPS back to normal AC power > Parallel UPS systems > integrated parallel UPSs in parallel with external bypass cabinet >

On each UPS cabinet:
11 - Press the ON button

The load is supplied by the UPS system when enough units are ready.

The load is now protected.

The "PFC" (1), "Inverter ON" (2) and "Load" (3) LEDs must be ON and green.
2. Maintenance

Transferring the UPS back to normal AC power ➔ Parallel UPS systems ➔

UPS set up as a frequency converter in parallel

The doors of the cabinets must be open.

Before starting the sequence, the switches must be in the positions indicated below:

### UPS cabinets

- **Q1**: ON
- **QSN**: OFF

### Battery cabinet(s)

- **QF1**: OFF

#### Procedure:

1. Close the upstream circuit breaker on the normal AC lines
2. Flip switch Q1 to ON
3. Flip the circuit breaker(s) QF1 to ON
4. Flip switch Q5N to ON
5. Check the presence of all UPS units on the display
6. Press the Enter button
7. Close the doors.
8. Press the ON button

The load is supplied by the UPS system when enough units are ready.

The load is now protected.

The "PFC" (1), "Inverter ON" (2) and "Load" (3) LEDs must be ON and green.
2. Maintenance

Transferring the UPS back to normal AC power > Parallel UPS systems >

Parallel UPS units with SSC (static-switch cabinet)

The doors of the cabinets must be open.

Before starting the sequence, the switches must be in the following positions (see diagram opposite).

**UPS cabinets**
- Flip switch Q1 to ON
- Flip switch Q5N to OFF

**Battery cabinet(s)**
- Flip circuit breaker QF1 to ON

**Cabinet**
- Flip switch Q4S to OFF
- Flip switch Q5N to OFF

**UPS cabinets**
- Flip switch Q3BP to OFF
- Flip switch Q5N to OFF

1. Close the upstream circuit breakers on the normal and bypass lines

The load is now supplied.

### Static-switch cabinet

**UPS cabinets**
- Flip switch Q1 to ON
- Flip switch Q5N to OFF

**Battery cabinet(s)**
- Flip circuit breaker(s) QF1 to ON

**Cabinet**
- Check that the "AC Bypass" (1) and (2) "Load" LEDs light up green

**On each UPS cabinet:**
- Flip switch Q1 to ON

**Check that the "PFC" LED (3) lights up green**

**Battery cabinet(s):**
- Flip the circuit breaker(s) QF1 to ON

**On each UPS cabinet:**
- Flip switch Q5N to ON

**Repeat operations 4 to 6 for all the UPSs**

**7.** Check the presence of all UPS units and the SSC cabinet on the display of one UPS
**8.** Press the Enter button

**SSC cabinet:**
- Flip switch Q3BP to OFF
- Flip switch Q5N to OFF

**On each UPS cabinet:**
- Flip switch Q5N to ON

**Battery cabinet(s):**
- Flip the circuit breaker(s) QF1 to ON

**On each UPS cabinet:**
- Flip switch Q5N to ON

**Repeat operations 4 to 6 for all the UPSs**

**SSC cabinet:**
- Flip switch Q3BP to OFF
- Flip switch Q5N to OFF

10. Close the doors.
2. Maintenance

Transferring the UPS back to normal AC power > Parallel UPS systems > Parallel UPS units with SSC (static-switch cabinet) >

Static-switch cabinet
11 - Press the ON button

The load is supplied by the UPS system when enough units are ready.

The load is now protected.

The "PFC" (1), "Inverter ON" (2) and "Load" (3) LEDs must be ON and green.

LEDs (4) and (5) must be ON and green.
2. Maintenance

Transferring the UPS back to normal AC power > Parallel UPS systems >

Parallel UPS units with SSC (static-switch cabinet) and SSC maintenance cabinet

The doors of the cabinets must be open.

Before starting the sequence, the switches must be in the following positions (see diagram opposite).

1. Close the upstream circuit breakers on the normal and bypass lines

The load is now supplied.

SSC cabinet:
2. Flip switch Q4S to ON
3. Flip switch QSN to ON

Check that the "AC Bypass" (1) and (2) "Load" LEDs light up green

On each UPS cabinet:
4. Flip switch Q1 to ON

Check that the "PFC" LED (3) lights up green

Battery cabinet(s):
5. Flip the circuit breaker(s) QF1 to ON

On each UPS cabinet:
6. Flip switch QSN to ON

Repeat operations 4 to 6 for all the UPSs

7. Check the presence of all UPS units on the display
8. Press the Enter button

SSC cabinet:
9. Flip switch Q3BP to OFF
10. Close the doors.
2. Maintenance

Transferring the UPS back to normal AC power > Parallel UPS systems > Parallel UPS units with SSC (static-switch cabinet) and SSC maintenance cabinet

Static-switch cabinet
11 - Press the ON button

The load is supplied by the UPS system when enough units are ready.

The load is now protected.

The "PFC" (1), "Inverter ON" (2) and "Load" (3) LEDs must be ON and green.

LEDs (4) and (5) must be ON and green.
2. Maintenance

2.3 Identifying anomalies

An anomaly has occurred when:
- at least one LED is red
- at least one LED is orange
- the buzzer beeps

General status LEDs

If an anomaly occurs, the display instructs the operator on the required action.

- The Load protected LED (1) is ON and green:
  The load is protected

- The Load not protected LED (2) goes ON red:
  The load is not protected.
Follow the displayed instructions.

- The Environment fault LED (3) is ON and orange:
  Minor or environment fault.
  The load is still protected.
  Follow the displayed instructions.

- Stop the buzzer by pressing the Stop buzzer button (4)
2. Maintenance

Identifying anomalies

Mimic panel

The Load LED (1) goes ON red.

The load is not supplied.

Follow the displayed instructions.

One of the following LEDs goes ON red:

- PFC LED (2)
- Inverter LED (3)
- Battery LED (4)
- Bypass LED (5)

One of the main UPS functions has faulted.

Follow the displayed instructions.
2. Maintenance

Life Cycle Monitoring (LCM)>

2.4 Life Cycle Monitoring (LCM)

Description

The Life Cycle Monitoring function provides UPS maintenance advice to guarantee installation availability for the user.

![Diagram of LCM function]

Alarm details

<table>
<thead>
<tr>
<th>LCM alarm details</th>
<th>Signification</th>
</tr>
</thead>
<tbody>
<tr>
<td>WARRANTY SOON EXPired</td>
<td>Contact IT Business to extend the optimum operating period of your installation: <a href="http://lcm.apc.com">http://lcm.apc.com</a></td>
</tr>
<tr>
<td></td>
<td>CONTACT APC: <a href="http://lcm.apc.com">http://lcm.apc.com</a></td>
</tr>
<tr>
<td>BATTERY TEST RECOMMENDED</td>
<td>The battery is approaching the end of its service life. The available backup time may be greatly reduced.</td>
</tr>
<tr>
<td></td>
<td>CONTACT APC: <a href="http://lcm.apc.com">http://lcm.apc.com</a></td>
</tr>
<tr>
<td>TECHNICAL CHECK RECOMMENDED</td>
<td>The parts of the product that are subject to wear should be checked.</td>
</tr>
<tr>
<td></td>
<td>CONTACT APC: <a href="http://lcm.apc.com">http://lcm.apc.com</a></td>
</tr>
</tbody>
</table>

Disable the LCM function

When LCM messages are displayed:

- For temporary disabling:
  1. Press the Abandon/ESC button

  The message will be repeated twice every 30 days.

- For complete disabling of LCM messages:
  1. Select Disable LCM indications in the Controls menu.

  Caution: You will no longer be informed of LCM events that concern your UPS if the LCM messages are disabled.
2.5 Training centres

To allow you to use APC by Schneider Electric products effectively and carry out basic maintenance, we offer a complete range of technical training courses in English and French.

### IT business 50 Hz training centres:

<table>
<thead>
<tr>
<th>Centre Name</th>
<th>Address</th>
<th>Phone</th>
<th>Fax</th>
</tr>
</thead>
<tbody>
<tr>
<td>Montbonnot Training Centre</td>
<td>140, Avenue Jean Kuntzmann, Innovallée, 38334 - St Ismier Cedex - FRANCE</td>
<td>Tel: +33 (0)4 76 18 34 14</td>
<td>Fax: +33 (0)4 76 18 45 21</td>
</tr>
<tr>
<td>Kolding Training Centre</td>
<td>Silcon Allé, 6000 Kolding, Denmark</td>
<td>Tel: +45 72190312</td>
<td></td>
</tr>
<tr>
<td>Shanghai Training Centre</td>
<td>No. 999, Shen Fu Road, Min Hang District, Shanghai 201108, P.R. China</td>
<td>Tel: +86 21 3407 3365</td>
<td>Fax: +86 21 3407 4526</td>
</tr>
<tr>
<td>Singapore Training Centre</td>
<td>10 Ang MO Kio Street 65, #03-06/10 Techpoint Building, Singapore 569059, Singapore</td>
<td>Tel: +65 6389 6792</td>
<td></td>
</tr>
</tbody>
</table>

### IT business 50-60 Hz training centre:

<table>
<thead>
<tr>
<th>Centre Name</th>
<th>Address</th>
<th>Phone</th>
<th>Fax</th>
</tr>
</thead>
<tbody>
<tr>
<td>West Kingston Training Centre</td>
<td>132 Fairgrounds Road, West Kingston - RI02892, U.S.A</td>
<td>Tel: +1 877 800 4272</td>
<td></td>
</tr>
<tr>
<td>Costa Mesa Training Centre</td>
<td>1660 Scenic Avenue, Costa Mesa - CA92626, U.S.A</td>
<td>Tel: +1 714 557 1637</td>
<td></td>
</tr>
<tr>
<td>São Paulo Training Centre</td>
<td>Al. Xingu, 850-Alphaville, Barueri, São Paulo 06455-030, São Paulo, Brazil</td>
<td>Tel: +55 11 4689-8600</td>
<td></td>
</tr>
</tbody>
</table>

Internet: [http://powerlearning.apc.com](http://powerlearning.apc.com)
Catalogue and registration available on line.
3. Appendices

3.1 Available options

IP 32 option
See the "MGE™ Galaxy™ 7000 IP 32" installation manual" ref. 3460028300.

Backfeed option
This option opens the normal AC and bypass AC inputs if power fails. This option is mandatory to meet standard IEC 62040-1-2.
If an external backfeed protection system is used, it must comply with the requirements indicated in Annex L of standard IEC 62040-1-2.

External synchronisation module option
With this option, a SYNIN communications card and two circuit breakers are added to each UPS unit or static-switch unit. The external synchronisation module issues a reference frequency used to synchronise the UPS units. For more information, see document no. 34000346.

Communication options
To discover the entire range of APC by Schneider Electric products and the options available for the MGE™ Galaxy™ 7000 range, we invite you to visit our web site at www.apc.com, or contact your local APC by Schneider Electric representative.
### 3.2 General characteristics of MGE™ Galaxy™ 7000 UPSs

#### UPS power in kVA

<table>
<thead>
<tr>
<th>UPS power in kVA</th>
<th>160</th>
<th>200</th>
<th>250</th>
<th>300</th>
<th>400</th>
<th>500</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Normal AC input</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of conductors</td>
<td>3 phases</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reference voltage at Pn</td>
<td>380 V to 415 V</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reference frequency</td>
<td>45 Hz to 66 Hz</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>THDI</td>
<td>Typically 3% at Pn</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Power factor</td>
<td>&gt; 0.99</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Bypass AC input</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of conductors</td>
<td>3 phases + neutral</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reference voltage at Pn</td>
<td>380 V to 415 V</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reference frequency</td>
<td>45 Hz to 66 Hz</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Load output</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of conductors</td>
<td>3 phases + neutral</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Set phase-to-phase voltages</td>
<td>380 V / 400 V / 415 V</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Set phase-to-neutral voltages</td>
<td>220 V / 230 V / 240 V</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Voltage variation</td>
<td>± 1%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adjustable frequencies and tolerance (on battery power)</td>
<td>50 Hz or 60 Hz ± 0.1 Hz</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Voltage variation for 0 to 100% load step impact</td>
<td>± 1%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Permissible overloads</td>
<td>150% for 30 seconds, 125% for 10 minutes</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>THDU Ph-to-Ph and Ph-to-N for non-linear load</td>
<td>&lt; 2% Ph-to-Ph</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Battery

- **Standard battery technology**: Sealed lead-acid battery (gas-recombination) (Valve Regulated Lead Acid type)
- **UPS power in kVA**:

<table>
<thead>
<tr>
<th>UPS power in kVA</th>
<th>160</th>
<th>200</th>
<th>250</th>
<th>300</th>
<th>400</th>
<th>500</th>
</tr>
</thead>
<tbody>
<tr>
<td>Active power (kW)</td>
<td>PN/2</td>
<td>PN</td>
<td>PN/2</td>
<td>PN</td>
<td>PN</td>
<td>PN</td>
</tr>
<tr>
<td>Efficiency</td>
<td>92.0</td>
<td>93.2</td>
<td>93.0</td>
<td>93.0</td>
<td>93.2</td>
<td>93.8</td>
</tr>
<tr>
<td>Heat losses in kW</td>
<td>6.3</td>
<td>10.5</td>
<td>6.8</td>
<td>13.5</td>
<td>8.2</td>
<td>14.9</td>
</tr>
<tr>
<td>Heat losses in calories/s</td>
<td>1496</td>
<td>2511</td>
<td>1619</td>
<td>3238</td>
<td>1962</td>
<td>3554</td>
</tr>
<tr>
<td>Storage temperature range</td>
<td>-25°C to +45°C</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operating temperature range at Pn</td>
<td>0°C to 35°C</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Relative humidity</td>
<td>45% to 75%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maximum operating altitude without derating</td>
<td>&lt;1000 m</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Noise level (dBA)</td>
<td>75</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Product standards
- IEC 62040

#### Safety standards
- IEC 62040-1-2

#### Protection standards
- IEC 62040-3

#### EMC standards
- IEC 62040-2
### 3.3 Battery characteristics

<table>
<thead>
<tr>
<th></th>
<th>Sealed lead-acid battery</th>
<th>Vented lead-acid battery</th>
<th>Ni-Cd battery</th>
</tr>
</thead>
<tbody>
<tr>
<td>Min/max number of cells</td>
<td>44/48</td>
<td>44/48</td>
<td>428/468</td>
</tr>
<tr>
<td>Floating voltage per cell</td>
<td>2.27V</td>
<td>2.2V</td>
<td>1.4V</td>
</tr>
<tr>
<td>Min/max floating voltage</td>
<td>600V / 654V</td>
<td>581V / 634V</td>
<td>600V / 655V</td>
</tr>
<tr>
<td>Min voltage per cell</td>
<td>1.65V to 1.9V</td>
<td>1.65V to 1.9V</td>
<td>Min threshold 1.1V</td>
</tr>
</tbody>
</table>
### 3.4 Glossary

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Backup time</td>
<td>Time that the connected loads can operate on battery power.</td>
</tr>
<tr>
<td>Bypass AC source</td>
<td>Source supplying the bypass line. The load can be transferred to the bypass line if an overload occurs on the UPS output, for maintenance or in the event of a malfunction.</td>
</tr>
<tr>
<td>Fin</td>
<td>UPS input frequency (normal or bypass AC input).</td>
</tr>
<tr>
<td>Inverter</td>
<td>UPS module that inputs DC power and outputs AC voltage and current.</td>
</tr>
<tr>
<td>Isc</td>
<td>Short-circuit current</td>
</tr>
<tr>
<td>Load</td>
<td>Devices or equipment connected to the UPS output.</td>
</tr>
<tr>
<td>Normal (double conversion) mode</td>
<td>The normal UPS operating mode. The AC source supplies the UPS which in turn supplies the connected loads (after electronic double conversion).</td>
</tr>
<tr>
<td>Normal AC source</td>
<td>Normal source of power for the UPS.</td>
</tr>
<tr>
<td>PE</td>
<td>Protective conductor</td>
</tr>
<tr>
<td>PEN</td>
<td>Conductor serving both as a protective conductor and a neutral conductor</td>
</tr>
<tr>
<td>PFC</td>
<td>Sinusoidal input module used to eliminate the harmonics reinjected in the upstream source by the UPS upstream.</td>
</tr>
<tr>
<td>Relay contacts</td>
<td>Contacts supplying information to the user in the form of signals.</td>
</tr>
<tr>
<td>SSC</td>
<td>Static-switch cabinet</td>
</tr>
<tr>
<td>Uin</td>
<td>UPS input voltage (normal or bypass AC input).</td>
</tr>
<tr>
<td>Uout</td>
<td>UPS output voltage.</td>
</tr>
<tr>
<td>UPS</td>
<td>Uninterruptible Power System</td>
</tr>
</tbody>
</table>