Installation

MGE™ Galaxy™ 3500 and Smart-UPS® VT
Enclosure for Batteries and Enclosure for Transformer 400 V

**IMPORTANT SAFETY INSTRUCTIONS**

- SAVE THESE INSTRUCTIONS

**Warning:** ALL safety instructions in the Safety Sheet (990-2940) must be read, understood and followed when installing the UPS system. Failure to do so could result in equipment damage, serious injury, or death.

**Caution:** 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.

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**Product Overview**

**Enclosure for batteries**

- Battery (customer-provided - shown for reference only)
- Battery tray
- DC disconnect
- Neutral
- Battery output terminals
- Protective Earth/Ground
- Communication board

The enclosure can contain up to 32 batteries - 16 batteries on the positive (right) side and 16 batteries on the negative (left) side. The enclosure holds eight battery trays and four batteries each. The maximum battery size is 197 mm x 165 mm x 175 mm.

**Enclosure for Transformer**

- Unistruts
- Neutral busbar
- PE/ground busbar
- Input terminal block
- Output terminal block

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**Site Planning**

**Note:** Refer to the UPS Receiving and Unpacking sheet (990-2940 for MGE Galaxy 3500 and 990-1747 for Smart-UPS VT) to determine the space requirements. Consult local codes for any additional requirements. Ideally, install the enclosure in a location close to the UPS.
Level the Enclosures

**Warning:** The system must be installed on a level floor. The leveling feet will stabilize the enclosure, but will not account for a badly leveled floor.

1. Use a screwdriver to lower the four leveling feet.
2. Do not move the enclosure after the leveling feet have been lowered.
3. Ensure that the enclosure is level.

Prepare for Cables

**Top cable entry**

- **Note:** Top cable entry is only applicable to Smart-UPS VT enclosure for batteries.

1. Remove the upper rear cover.
2. Remove the top cover.
3. Make holes for cables/grommets.
4. Re-install the top cover.

**Bottom cable entry through the I/O box (optional)**

1. Remove the upper rear cover.
2. Remove the top cover of the I/O box.
3. Remove the bottom cover of the I/O box (this one will not be reinstalled).
4. Route the cables through the I/O box to the cable connection area.
5. Re-install the top cover of the I/O box.

Install and Connect Batteries

**Caution:** Install the batteries from the bottom and work your way up.

1. Remove the front door.
2. Remove the inner front door by loosening the ten screws.
3. Loosen the two screws from each battery tray and remove the battery trays.
4. Install four batteries on each battery tray.
5. Connect wires between the four batteries on the tray (negative to positive).
6. Re-install the trays with the batteries installed and secure with the two screws.
Connect the Positive Bus

1. Connect wire from the battery breaker + and connect it to the right top tray.
2. Connect wire from the top tray to the second tray.
3. Connect wire from the second tray to the third tray.
4. Connect wire from the third tray to the bottom tray.
5. Connect wire from the back (-) of the bottom tray to the midpoint/neutral busbar in the top of the enclosure.
6. Connect wire from the midpoint/neutral busbar to the midpoint/neutral of the battery breaker.

See “Battery Enclosure Wiring” for more information.

Connect the Negative Bus

1. Connect wire from the midpoint/neutral busbar to the + on the first battery from the front at the left top tray.
2. Connect wire from the top tray to the second tray.
3. Connect wire from the second tray to the third tray.
4. Connect wire from the third tray to the bottom tray.
5. Connect wire from the back of the bottom tray to the battery breaker -.

Connect the EPO to the UPS and the Battery Enclosure

1. Connect the EPO (Emergency Power Off) to J108 in the UPS and to J203 in the Battery Enclosure by guiding the cable through conduits as described on the previous page.
2. Connect the EPO by using this configuration:

3. Connect battery cables between the Enclosure for batteries and the UPS

1. Connect battery cables from the battery terminal block (+, N, -) to the (+, N, -) battery cable landings in the UPS.

Install and Connect Transformer

1. Remove the front door.
2. Remove the inner front door by loosening the ten screws.
1. Install the transformer on the four unistruts (two unistruts are stationary and two are adjustable) and secure using the four M8 spring nuts.

2. Connect cables from the transformer input to the top of the input terminal block and the ground and neutral busbars.

3. Connect cables from the transformer output to the top of the output terminal block and the ground and neutral busbars.

4. Connect cables (L1, L2, L3, N, G) from the mains supply to the bottom of the input terminal block and the ground and neutral busbars.

5. Connect cables (L1, L2, L3, N, G) from the bottom of the output terminal block and the ground and neutral busbars to the UPS input terminals.

Specifications

<table>
<thead>
<tr>
<th>Physical</th>
<th>Battery</th>
<th>Transformer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dimensions (H x W x D)</td>
<td>1487 x 523 x 837 mm</td>
<td>1487 x 523 x 837 mm</td>
</tr>
<tr>
<td>Shipping dimensions (H x W x D)</td>
<td>1664 x 724 x 1105 mm</td>
<td>1664 x 724 x 1105 mm</td>
</tr>
<tr>
<td>Weight</td>
<td>259.5 kg</td>
<td>146.5 kg</td>
</tr>
<tr>
<td>Shipping weight</td>
<td>294 kg</td>
<td>181 kg</td>
</tr>
</tbody>
</table>

Environmental

- Operating environment: Indoor use only, protect from water and conductive contaminants
- Operating temperature: 0° to 40°C
- Recommendation for batteries: 15° to 25°C
- Humidity: 0 to 95%, non-condensing

Battery requirements

<table>
<thead>
<tr>
<th>Electrical</th>
<th>10-40 kVA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nom voltage (VDC)</td>
<td>+/- 194</td>
</tr>
<tr>
<td>I_{max} discharge</td>
<td>87.9</td>
</tr>
<tr>
<td>I_{max} discharge</td>
<td>110.1</td>
</tr>
<tr>
<td>End Voltage (VDC)</td>
<td>+/- 154</td>
</tr>
</tbody>
</table>

1 Nominal battery discharge current based on rated load and nominal battery voltage.
2 Maximum battery discharge current based on rated load at the end of the discharge.

Recommended batteries.

<table>
<thead>
<tr>
<th>Manufacturer</th>
<th>Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>OTP</td>
<td>6FM24</td>
</tr>
<tr>
<td>OTP</td>
<td>6FM38</td>
</tr>
<tr>
<td>Yuasa</td>
<td>NP7-12</td>
</tr>
<tr>
<td>Yuasa</td>
<td>NP24-12</td>
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<tr>
<td>Yuasa</td>
<td>NP38-12</td>
</tr>
<tr>
<td>Panasonic</td>
<td>LC-X1224</td>
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<tr>
<td>Panasonic</td>
<td>LC-X1238</td>
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</tbody>
</table>

Maximum total battery weight is 500 kg.
M6 torque 12Nm.

Transformer requirements

<table>
<thead>
<tr>
<th>Electrical</th>
<th>40 kVA/32 kW</th>
</tr>
</thead>
<tbody>
<tr>
<td>380 V</td>
<td>400 V</td>
</tr>
<tr>
<td>415 V</td>
<td>57.4</td>
</tr>
<tr>
<td>Max. input current (A)</td>
<td>54.6</td>
</tr>
<tr>
<td>Max. output current (A)</td>
<td>60.8</td>
</tr>
<tr>
<td>Max. input current (A)</td>
<td>57.7</td>
</tr>
<tr>
<td>Max. output current (A)</td>
<td>55.6</td>
</tr>
</tbody>
</table>

Maximum overall recommended dimensions for customer-provided transformer are (WxDxH) 400 x 500 x 600 mm.
Maximum transformer mounting dimensions are (WxD) 305 x 410 mm and maximum transformer weight is 863 kg.
Hardware provided is 4 x M8.
M8 torque 24Nm.

Contact Information

For local, country-specific centers: go to www.apc.com/support/contact.
Appendix

Battery Enclosure Wiring