Battery cabinets
The value of your back-up time from 10 to 900 kVA

Total protection during downtime
- Designed to satisfy and respect safety protection standards (EN 50272-2 and EN 62040-1).
- The right size of protection device tailored to your power rating.
- Robust cabinet.
- Normal and long-life batteries.
- Chemical safety means shelves protected against corrosion of H2SO4 that can cause risks of electric shock and short circuit (fire).
- Designed according to the specific UPS model for easy connections, correct recharge current and appropriate discharge rating to optimize battery life.
- Modular hot-swap battery cabinets with string protection and individual string disconnection.

Easy installation and maintenance
- Frontal switch/breaker protection.
- Frontal input output connections.
- Easy battery replacement.
- Suitable for rigid cables and cable-glands.
- Suitable for tripping coil contact (on request).
- Height aligned with UPS.

Electrical protection coordination for your safety
Battery protection is essential for safety. We perform tests in our laboratories under abnormal conditions (i.e. short-circuit) to guarantee the maximum safety for the installation. As batteries can cause fire if the protection is not adequate, we test all battery protections in real operating conditions.
- Switch/Breaker with fuse
- Magnetothermal MCCB

The protective devices are sized according to the UPS and to the battery short-circuit current.

Technical data

<table>
<thead>
<tr>
<th>Standard degree of protection</th>
<th>IP20 (according to IEC 60529)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Optional degree of protection</td>
<td>IP32</td>
</tr>
<tr>
<td>Operating temperature</td>
<td>0÷40 °C (+15 ÷ +25 °C recommended for long battery life)*</td>
</tr>
<tr>
<td>Ambient storage and transport temperature</td>
<td>-5 °C ÷ +40 °C max (recommended: 25 °C)</td>
</tr>
<tr>
<td>Relative humidity (condensation-free)</td>
<td>up to 95%</td>
</tr>
<tr>
<td>Conforms to standards</td>
<td>EN 50272-2, EN 62040-1</td>
</tr>
</tbody>
</table>

*(1) Versions with a higher degree of protection and versions with a wider operating temperature range are available on request. Please contact SOCOMEC for specific battery brands and custom solutions.
Back-up storage

Total protection during downtime

- Designed to satisfy and respect safety protection standards (EN 50272-2 and EN 62040-1).
- The right size of protection device tailored to your power rating.
- Robust cabinet.
- Normal and long-life batteries.
- Compatible with different battery brands.
- Chemical safety means shelves protected against corrosion of H2SO4 that can cause risks of electric shock and short circuit (fire).
- Designed according to the specific UPS model for easy connections, correct recharge current and appropriate discharge rating to optimize battery life.
- Modular hot-swap battery cabinets with string protection and individual string disconnection.

Easy installation and maintenance

- Frontal switch/breaker protection.
- Frontal input output connections.
- Easy battery replacement.
- Suitable for rigid cables and cable-glands.
- Suitable for tripping coil contact (on request).
- Height aligned with UPS.

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Standard degree of protection IP20 (according to IEC 60529)

Optional degree of protection IP32

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Ambient storage and transport temperature -5 °C ÷ +40 °C max (reccomended: 25 °C)

Relative humidity (condensation-free) up to 95%

Conforms to standards EN 50272-2, EN 62040-1

Product declaration CE

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Dimensions

Small Masterys battery cabinet

Masterys and Delphys battery cabinet

Modular hot-swap battery cabinet - small capacity

Modular hot-swap battery cabinet - medium capacity

Modular battery cabinet - large capacity

Battery Rack
Back-up storage

Batteries are the most common solution to ensure back-up power supply in a UPS solution, but they also are the weakest link in the system and the leading cause of power-related downtime. SOCOMEC proposes Lithium-Ion capacitor and supercapacitor UPS & back-up systems that are innovative energy storage solutions providing reliable back-up power for protecting critical applications from unplanned system outages.

Power supply continuity is a vital function for every critical application. The availability of a quality power supply is ensured by a UPS system, while the emergency energy to be provided during a power outage is stored using lead-acid batteries. When the power fails, the UPS draws its power from banks of batteries until it is able to start and synchronize standby generators. If lead-acid batteries are the most cost-effective energy solution, they are also unreliable and temperature sensitive, causing unexpected failures leading to power-related downtime. Lead-acid batteries also require long recharging cycles, regular maintenance and also constant monitoring to ensure their availability and extend their life-cycle.

**Reliable back-up power**

In response to concerns over the reliability and limitations of lead-acid batteries and their impact on the environment, SOCOMEC has developed Supercapacitor and Lithium Ion Capacitor energy systems and innovative eco-friendly UPS energy storage solutions specific for:
- applications requiring a back-up time from seconds up to a few minutes,
- processes sensitive to frequent micro interruptions,
- applications working in critical environments where hazardous substances are not allowed,
- applications with severe ambient conditions.

<table>
<thead>
<tr>
<th>Storage solution</th>
<th>Energy density</th>
<th>Power density</th>
<th>Life Cycle</th>
<th>Discharge time</th>
<th>Recharge time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Battery</td>
<td>Medium/High</td>
<td>Low</td>
<td>Short/Medium</td>
<td>Slow/Medium</td>
<td>Slow/Medium</td>
</tr>
<tr>
<td>Lithium-ion capacitor</td>
<td>Low</td>
<td>Very high</td>
<td>Ultra-long</td>
<td>Ultra-fast</td>
<td>Ultra-fast</td>
</tr>
<tr>
<td>Supercapacitor</td>
<td>Extremely low</td>
<td>High</td>
<td>Very long</td>
<td>Very fast</td>
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Reliable back-up power

In response to concerns over the reliability and limitations of lead-acid batteries and their impact on the environment, SOCOMEC has developed Supercapacitor and Lithium Ion capacitor energy systems and innovative eco-friendly UPS energy storage solutions specific for:

- applications requiring a back-up time from seconds up to a few minutes,
- processes sensitive to frequent micro interruptions,
- applications working in critical environments where hazardous substances are not allowed,
- applications with severe ambient conditions.

Power storage

Lithium-ion capacitors and supercapacitors

Maximum availability

- Ultra-fast recharge.
- Allows scalability for capacity or redundancy.
- No restrictions linked to traditional battery use.
- No maintenance risks.
- No fire risks.

Cost-effective solution

- Ultra-high power density.
- Small footprint.
- 15+ years’ service life.
- Easy and minimum maintenance.
- Fully compatible with every SOCOMEC UPS unit.

Maximum reliability

- Performance not affected by critical operating conditions.
- No ageing due to frequent process micro interruptions.
- Wide operating temperature range (-10 °C to +70 °C).
- Embedded cell to cell monitoring.

High sustainability

- No toxic materials.
- REACH/RoHS compliant materials.
- Designed, developed and produced by SOCOMEC in partnership with JSR, Japanese leader in materials innovation.

LIC Cell characteristics

- 3300 F
- 2.2 to 3.8 V
- No thermal runaway
- 0.7 mΩ equivalent series resistance
- Millions of cycles without significant derating

Lithium-ion capacitors: operating principle

The activated carbon is a capacitor cathode
The Li-doped carbon anode is a battery anode, undergoing Li doping during charge and de-doping during discharge
Hybrid construction creates a capacitor which yields the best performance features of batteries and capacitors

Supercapacitors

- The supercapacitor is an evolution of the traditional capacitor but it can store hundreds of times the energy of a traditional capacitor due to a very high surface area in activated carbon. Socomec proposes supercapacitor solutions in its medium power range to support power bridging or for mains with frequent micro interruptions.
- According to the back-up time requested, the supercapacitor can be fitted inside the UPS or in an external battery cabinet.

Supercapacitor characteristics

- 350 F
- 2.7 V
- No thermal runaway
- 3.2 mΩ equivalent series resistance
- 500,000 cycles without significant derating