Lithium-ion Battery for UPS

K-UPS

Delivering High Power, Small Footprint and Flexible Design
Kokam UPS batteries are being operated in over 7 Countries worldwide.

Total Installation | Global Track Record

+80MW
\[\frac{20MWh}{\text{Global Track Record}}\]
Kokam's K-UPS provides optimal protection against an outage in a number of applications including medical, telecom, and data centers. During an outage, our UPS immediately provides battery backup power to protect mission critical information and systems.

Kokam’s UPS Battery (K-UPS) is composed of Kokam’s SLPBs, is light in weight and small in size, due to its high energy density. It can hence be placed in restricted spaces and the maintenance is rather easy due to convenient accessibility. Also, when compared to lead acid batteries of the same weight and volume, output performance of Kokam SLPB is significantly higher.

**Lead-Acid battery vs Kokam Lithium-ion Battery**
- Higher energy density and lighter weight allows integration of batteries and UPS providing faster and more reliable field installation and start-up
- Provides 4 to 8 times longer cycle life and high power and energy density than lead-acid battery
- No degradation with shallow cycles & No open-circuit failure mode during normal operation
- No hydrogen gas generation & Integrated monitoring of individual cell’s voltages and temperatures

**Key Strengths**
- High power output
- Small volume footprint
- Flexible design
- Essential backup power to protect Critical information and systems
- Outstanding safety performance
Comparison of VRLA vs K-UPS

- **High Power**
  - 5 times more powerful
  - K-UPS: Max 10 C-rate
  - VRLA: 2 C-rate

- **Small Footprint**
  - 3.5 times more energy density
  - K-UPS: 3ft²
  - VRLA: 10ft²

- **Long Cycle life**
  - 3 times more longer
  - K-UPS: Max 15 years
  - VRLA: Max 5 years

- **Light Weight**
  - 5 times more lighter
  - K-UPS Weight
  - VRLA Weight

- **Wide Temperature range**
  - No additional cooling system
  - K-UPS: 18-28°C
  - VRLA: 18-22°C

- **Convenient Maintenance**
  - No Hydrogen gas emissions result in lower ventilation costs and safer operation than Lead-Acid

VRLA: Valve Regulated Lead Acid Battery
K-UPS: Kokam Lithium-ion Battery for UPS
Structure of **Kokam UPS Battery**

**K-UPS Module**
- The unit-cells can be easily disassembled for maintenance
- Each module is equipped with Module BMS
- Compact design with efficient air vent holes for effective dissipation of heat

A  Protection Cover  
B  Conductor, Terminal  
C  BMS & Junction board (inside)  
D  BMS Cover  
E  Heat Sink  
F  Cell Tray

**K-UPS Rack**
- A  Fire Suppression & Fan  
- B  BPU (Battery Protection Unit)  
  - String BMS  
  - Disconnector Switch  
  - Fuse  
  - Contactor  
- C  SMPS (Switched Mode Power Supply)  
- D  Battery Module (incl. Module BMS)  
- E  Rack Cover

**Applications**
Installed in various locations and supplies emergency back-up power during an outage

- Data Center  
- Financial institution  
- Medical Facility  
- Semiconductor factory

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2 Pole K-UPS  
3 Pole K-UPS
## Specification of K-UPS Battery Rack

### 2 Pole (Ultra High Power)

<table>
<thead>
<tr>
<th>Back Up Time</th>
<th>Rack Configuration</th>
<th>Installed Energy (kWh, @ BOL)</th>
<th>Module Configuration</th>
<th>Voltage Range (Vdc)</th>
<th>Continuous Discharge Power (kW, 5min)</th>
<th>Peak Discharge Power (kW, 1min)</th>
<th>Dimension (Wx Dx H, mm)</th>
<th>Weight (kg)</th>
<th>Cell Capacity (Ah)</th>
<th>Certification</th>
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<tbody>
<tr>
<td></td>
<td>120S</td>
<td>33.3</td>
<td>30S1P x 4</td>
<td>384~492</td>
<td>266</td>
<td>333</td>
<td>580 x 740 x 1,960</td>
<td>&lt;525</td>
<td>75</td>
<td>UL1642, IEC62619, UN38.3</td>
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<tr>
<td></td>
<td>132S</td>
<td>36.6</td>
<td>33S1P x 4</td>
<td>423~541</td>
<td>293</td>
<td>366</td>
<td>580 x 740 x 1,960</td>
<td>&lt;550</td>
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<td>UL1642, IEC62619, UN38.3</td>
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<td></td>
<td>140S</td>
<td>38.8</td>
<td>35S1P x 4</td>
<td>448~574</td>
<td>310</td>
<td>388</td>
<td>580 x 740 x 1,960</td>
<td>&lt;570</td>
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<td>160S</td>
<td>44.4</td>
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<td>512~656</td>
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<td>444</td>
<td>580 x 740 x 2,300</td>
<td>&lt;650</td>
<td>75</td>
<td>UL1642, IEC62619, UN38.3</td>
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### 2 Pole (High Power)

<table>
<thead>
<tr>
<th>Back Up Time</th>
<th>Rack Configuration</th>
<th>Installed Energy (kWh, @ BOL)</th>
<th>Module Configuration</th>
<th>Voltage Range (Vdc)</th>
<th>Dimension (Wx Dx H, mm)</th>
<th>Weight (kg)</th>
<th>Cell Capacity (Ah)</th>
<th>Certification</th>
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<td>37.5</td>
<td>30S1P x 4</td>
<td>384~492</td>
<td>580 x 740 x 1,960</td>
<td>&lt;525</td>
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<td>UL1642, IEC62619, UN38.3</td>
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<td>132S</td>
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<td>580 x 740 x 1,960</td>
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<td>&lt;650</td>
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<td>UL1642, IEC62619, UN38.3</td>
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### 3 Pole

<table>
<thead>
<tr>
<th>Cell Type</th>
<th>Ultra High Power</th>
<th>Ultra High Power</th>
<th>High Energy</th>
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<tr>
<td>Back Up Time</td>
<td>&lt; 6 minutes</td>
<td>5 to 30 minutes</td>
<td>&gt;30 minutes</td>
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<td>Rack Configuration</td>
<td>66S+66S</td>
<td>60S+60S</td>
<td>100S+100S+2P100S+2P100S</td>
</tr>
<tr>
<td>Installed Energy (kWh, @ BOL)</td>
<td>36.6</td>
<td>37.5</td>
<td>41.2</td>
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<tr>
<td>Module Configuration</td>
<td>33S x 4</td>
<td>30S1P x 4</td>
<td>33S1P x 4</td>
</tr>
<tr>
<td>Voltage Range (Vdc)</td>
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<td>192~246</td>
<td>212~270</td>
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<tr>
<td>Dimension (Wx Dx H, mm)</td>
<td>580 x 740 x 1,960</td>
<td>580 x 740 x 1,960</td>
<td>780 x 676 x 2,237</td>
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<tr>
<td>Weight (kg)</td>
<td>&lt;550</td>
<td>&lt;525</td>
<td>&lt;550</td>
</tr>
<tr>
<td>Cell Capacity (Ah)</td>
<td>75</td>
<td>85</td>
<td>85</td>
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