LITHIUM IRON PHOSPHATE
LEAD ACID REPLACEMENT
FROM ULTRALIFE
Ultralife Corporation serves its markets with products and services ranging from power solutions to communications and electronics systems. Through its engineering and collaborative approach to problem solving, Ultralife serves government, defense and commercial customers across the globe. Headquartered in Newark, New York, the Company’s business segments include: Battery & Energy Products and Communications Systems. Ultralife has operations in North America, Europe and Asia.

THE NEXT-GENERATION IS HERE TODAY...
ULTRALIFE Lithium Iron Phosphate (LiFePO4) batteries are the modern replacement for traditional lead acid batteries in a myriad of mission critical applications. With lower weight, higher energy, longer life, electronic protection and safety certification, ULTRALIFE LiFePO4 batteries outperform Lead Acid on almost every measure.

If you are looking to replace your old lead acid battery system or need a power source for your new device, ULTRALIFE LiFePO4 batteries couple next-generation performance with off the shelf availability.

“ULTRALIFE LiFePO4 batteries outperform Lead Acid on almost every measure”
THE CLEAR CHOICE

ULTRALIFE Lithium Iron Phosphate chemistry is the clear choice for batteries which must operate for many years without the need for servicing or replacement. The similar charging voltage means that ULTRALIFE LiFePO4 batteries can usually be transplanted into existing lead acid applications without modification.

When it comes to maintenance the ULTRALIFE LiFePO4 batteries out perform traditional Lead Acid batteries on nearly every measure; they never require topping with water, they don’t require gas extraction facilities and their service life is usually 5 to 7 years, compared with around 2 years for Lead Acid batteries.

The ULTRALIFE LiFePO4 batteries are an affordable solution to many issues, especially in remote locations, while providing a much lower “total cost of ownership” solution over traditional Sealed Lead Acid (SLA) - when you also factor in the logistics and labor to replace SLA every 1-2 years, Lithium Iron Phosphate is an all-round winner.

The inclusion of fuel gauging on products such as the URB12400-UL-SMB now means the battery can accurately communicate its state of charge to your device, enhancing the user experience.

“An affordable solution to many issues associated with Sealed Lead Acid (SLA)”

APPLICATIONS INCLUDE

- Oil/Gas Automation and Measurement
- Oil/Gas Production
- Automated Gate Operators
- Automated Range Target Systems
- Commercial Aerator Systems
- Commercial Livestock Feeder Systems
- Recreational Vehicle Back-up Power Supply
- Marine Starter and Auxiliary Power Supply System
- Solar Regenerated Back-up Power Supply
- Data Center Back-up Power Supply
- Scooters / Wheelchairs
- Robots
- Medical Carts
- UPS Replacement
- Solar Battery
- Fire & Emergency Vehicles
- Heavy Goods Vehicles
- Specialist Patrol Vehicles
- Floor Cleaning Machines
- Automated Ticket Machines

BENEFITS AT A GLANCE

- ULTRALIFE LiFePO4 batteries are three times lighter than lead acid batteries of the same energy. By replacing your lead acid batteries with ULTRALIFE LiFePO4 batteries, you’ll significantly reduce the weight of your existing system or get three times the energy if weight reduction isn’t a factor.

- ULTRALIFE LiFePO4 batteries contain built-in protection electronics to prevent over-charge, over-discharge or over-temperature. This protection lets the battery take care of itself, making them safe and robust for a myriad of mission critical applications.

- ULTRALIFE LiFePO4 batteries can be fully cycled, from 100% charged to 100% discharged, up to 1500 times compared to just 300-500 for the best “cyclic” lead acid batteries.

- ULTRALIFE LiFePO4 batteries can be connected in a variety of series and parallel arrays to customize system voltage and/or capacity. This building block approach makes it easy meet your application requirements. Please contact us for application advice.

- ULTRALIFE LiFePO4 batteries can often be charged using an existing lead acid battery charger which makes switching to a high performance ULTRALIFE LiFePO4 battery a true ‘drop-in’ replacement. Please contact us to discuss.

- ULTRALIFE LiFePO4 batteries have significantly better charge retention than lead acid batteries. Maintenance charging only has to be performed once every four to six months – saving energy and reducing cost.

- ULTRALIFE LiFePO4 batteries can be mounted in any orientation and do not require any physical maintenance.

- ULTRALIFE LiFePO4 batteries meet the requirements of strict internationally recognized standards such as IEC 62133:2012 (safety) and UN38.3 (transportation). Specific models also meet UL 2054 (safety). Full certification documentation is available upon request.

- ULTRALIFE LiFePO4 batteries contain active cell balancing circuitry which works to maximize battery capacity on each and every cycle.

- ULTRALIFE LiFePO4 batteries have a service life of up to 7 years, helping commercial and industrial customers avoid the regular replacement costs associated with Lead Acid batteries.
ULTRALIFE LiFePO4 VS LEAD ACID

This practical example shows the outstanding performance of ULTRALIFE LiFePO4 batteries compared to traditional lead acid batteries.

LEAD ACID

The chart shows the room temperature discharge performance of a 12V 7Ah lead acid battery from a leading manufacturer. The battery voltage drops steadily during discharge and fails to meet its rated capacity, even at a benign 350mA (0.05C) discharge rate. When the battery is subjected to higher loads of 1400mA (0.2C) and 5000mA (0.7C) the voltage drops are more severe and the delivered capacity is severely reduced. As delivered energy (Whatt Hours) is calculated by multiplying Voltage (V) by Discharge Capacity (Ampere Hours) the resulting ‘area under the curve’ is severely compromised at these higher discharge rates.

ULTRALIFE LiFePO4

By comparison, the ULTRALIFE LiFePO4 URB1270 is the same size as its lead acid equivalent but half of the weight. This battery exhibits a consistently flat voltage profile throughout its discharge until energy is depleted. This superior performance characteristic is maintained, even at higher discharge currents which means more energy is delivered. In the 5000mA load test, the URB1270 delivers more than twice the energy of the lead acid battery which proves its capability to outperform lead-acid in power demanding applications.

In this head to head test, the ULTRALIFE URB1270 LiFePO4 battery demonstrates its superior performance characteristics, performance which is repeated across the entire range of ULTRALIFE LiFePO4 batteries.

“ULTRALIFE LiFePO4 batteries are three times lighter than lead acid batteries of the same energy”

TECHNICAL SPECIFICATIONS

<table>
<thead>
<tr>
<th>LITHIUM IRON PHOSPHATE (LIFEPO4) BATTERIES</th>
<th>SPECIFICATIONS</th>
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<tbody>
<tr>
<td><strong>URAL1270</strong></td>
<td><strong>URAL12200</strong></td>
</tr>
<tr>
<td><strong>Typical Voltage</strong></td>
<td>6.4V</td>
</tr>
<tr>
<td><strong>Typical Capacity</strong></td>
<td>4.5Ah</td>
</tr>
<tr>
<td><strong>Typical Energy</strong></td>
<td>35Ah</td>
</tr>
<tr>
<td><strong>Max. Charge Current</strong></td>
<td>5000mA</td>
</tr>
<tr>
<td><strong>Charge Voltage</strong></td>
<td>5.5V</td>
</tr>
<tr>
<td><strong>Charge Method</strong></td>
<td>Constant Voltage, Constant Current (CC/CV) regime</td>
</tr>
<tr>
<td><strong>Max. Continuous Discharge Current</strong></td>
<td>5A</td>
</tr>
<tr>
<td><strong>Over Current Protection</strong></td>
<td>20A</td>
</tr>
<tr>
<td><strong>Response Time</strong></td>
<td>5ms - 20ms</td>
</tr>
<tr>
<td><strong>Typical Discharge Cut-off Voltage</strong></td>
<td>5V</td>
</tr>
<tr>
<td><strong>Internal Resistance</strong></td>
<td>≤250mΩ</td>
</tr>
<tr>
<td><strong>Nominal Voltage</strong></td>
<td>14.5V</td>
</tr>
<tr>
<td><strong>Internal Resistance</strong></td>
<td>≤10mΩ</td>
</tr>
<tr>
<td><strong>Operating Temperature</strong></td>
<td>-20°C to +60°C</td>
</tr>
<tr>
<td><strong>Operating Temperatures</strong></td>
<td>-20°C to +45°C</td>
</tr>
<tr>
<td><strong>Terminal Type</strong></td>
<td>Stud, 5/16&quot;</td>
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<tr>
<td><strong>Weight</strong></td>
<td>0.36kg</td>
</tr>
<tr>
<td><strong>Dimensions</strong></td>
<td>55mm (2.16&quot;) x 55mm (2.16&quot;) x 35mm (1.38&quot;)</td>
</tr>
<tr>
<td><strong>Certification</strong></td>
<td>UL2054, UL2055, IEC 62133:2012</td>
</tr>
<tr>
<td><strong>Material Safety Data Sheet</strong></td>
<td>MSDS00152</td>
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</tbody>
</table>

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• Specification details are correct at the time of printing.
• For the latest data please refer to published specifications which are available on our website at www.ultralifecorp.com
• Operator & regional variations may apply to the transport of Lithium Ion batteries. Check with your operator.