LPL Series - Long Life Standby
LPL12-60(12V60Ah)

Specifications

- **Rated Voltage**: 12V
- **Nominal Capacity**: 60.0Ah (C10, 1.80V/cell)
- **Dimension**:
  - Length: 260±3mm (10.24 inches)
  - Width: 168±2mm (6.61 inches)
  - Container Height: 210±3mm (8.27 inches)
  - Total Height: 216±3mm (8.50 inches)
- **Approx Weight**: 20.7 Kg (45.64 lbs)
- **Terminal**: M6
- **Container Material**: ABS
- **Rated Capacity (25°C)**:
  - 63.6Ah (20hr, 3.18A, 1.80V/cell)
  - 60.0Ah (10hr, 6.00A, 1.80V/cell)
  - 55.0Ah (5hr, 11.0A, 1.75V/cell)
  - 50.1Ah (3hr, 16.7A, 1.75V/cell)
  - 38.6Ah (1hr, 38.6A, 1.60V/cell)
- **Max. Discharge Current**: 720A (5s)
- **Internal Resistance (25°C)**: Approx 7.4mΩ
- **Operating Temp.Range**:
  - Discharge: -15 ~ 50°C (5 ~ 122°F)
  - Charge: 0 ~ 40°C (32 ~ 104°F)
  - Storage: -15 ~ 40°C (5 ~ 104°F)
- **Nominal Operating Temp. Range**: 25±3°C (77±5°F)
- **Cycle Use**: Initial Charging Current less than 0A.
- **Standby Use**: Initial Charging Current less than 18.0A.
- **Effect of temp. to Capacity**:
  - 40°C (104°F): 103%
  - 25°C (77°F): 100%
  - 0°C (32°F): 86%
- **Self Discharge**: LPL series batteries may be stored for up to 6 months at 25°C (77°F) and then a freshening charge is required. For higher temperatures the time interval will be shorter.

### Constant Current Discharge (Amperes) at 25°C (77°F)

<table>
<thead>
<tr>
<th>F.V/Time</th>
<th>10min</th>
<th>15min</th>
<th>20min</th>
<th>30min</th>
<th>45min</th>
<th>1h</th>
<th>2h</th>
<th>3h</th>
<th>4h</th>
<th>5h</th>
<th>6h</th>
<th>8h</th>
<th>10h</th>
<th>20h</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.85V/cell</td>
<td>89.7</td>
<td>77.7</td>
<td>61.1</td>
<td>54.6</td>
<td>40.0</td>
<td>33.9</td>
<td>20.6</td>
<td>15.1</td>
<td>11.9</td>
<td>10.3</td>
<td>9.08</td>
<td>6.98</td>
<td>5.79</td>
<td>3.07</td>
</tr>
<tr>
<td>1.80V/cell</td>
<td>101.8</td>
<td>86.1</td>
<td>69.1</td>
<td>59.5</td>
<td>42.3</td>
<td>35.1</td>
<td>21.3</td>
<td>16.4</td>
<td>12.7</td>
<td>10.8</td>
<td>9.76</td>
<td>7.35</td>
<td>6.00</td>
<td>3.18</td>
</tr>
<tr>
<td>1.75V/cell</td>
<td>110.4</td>
<td>95.4</td>
<td>74.6</td>
<td>60.7</td>
<td>43.9</td>
<td>36.8</td>
<td>22.4</td>
<td>16.7</td>
<td>12.9</td>
<td>11.0</td>
<td>9.83</td>
<td>7.39</td>
<td>6.12</td>
<td>3.21</td>
</tr>
<tr>
<td>1.70V/cell</td>
<td>117.7</td>
<td>101.3</td>
<td>79.1</td>
<td>61.9</td>
<td>44.8</td>
<td>37.5</td>
<td>22.9</td>
<td>17.1</td>
<td>13.1</td>
<td>11.2</td>
<td>9.88</td>
<td>7.50</td>
<td>6.18</td>
<td>3.25</td>
</tr>
<tr>
<td>1.65V/cell</td>
<td>121.4</td>
<td>104.2</td>
<td>81.3</td>
<td>62.8</td>
<td>45.4</td>
<td>38.1</td>
<td>23.2</td>
<td>17.2</td>
<td>13.3</td>
<td>11.4</td>
<td>9.93</td>
<td>7.61</td>
<td>6.26</td>
<td>3.29</td>
</tr>
<tr>
<td>1.60V/cell</td>
<td>125.5</td>
<td>107.5</td>
<td>83.4</td>
<td>63.8</td>
<td>46.1</td>
<td>38.6</td>
<td>23.5</td>
<td>17.4</td>
<td>13.5</td>
<td>11.6</td>
<td>10.0</td>
<td>7.70</td>
<td>6.33</td>
<td>3.32</td>
</tr>
</tbody>
</table>

### Constant Power Discharge (Watts/cell) at 25°C (77°F)

<table>
<thead>
<tr>
<th>F.V/Time</th>
<th>10min</th>
<th>15min</th>
<th>20min</th>
<th>30min</th>
<th>45min</th>
<th>1h</th>
<th>2h</th>
<th>3h</th>
<th>4h</th>
<th>5h</th>
<th>6h</th>
<th>8h</th>
<th>10h</th>
<th>20h</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.85V/cell</td>
<td>168.7</td>
<td>147.2</td>
<td>116.3</td>
<td>104.4</td>
<td>78.8</td>
<td>65.5</td>
<td>40.1</td>
<td>29.6</td>
<td>23.3</td>
<td>20.3</td>
<td>17.9</td>
<td>13.9</td>
<td>11.5</td>
<td>6.11</td>
</tr>
<tr>
<td>1.80V/cell</td>
<td>189.7</td>
<td>164.6</td>
<td>130.1</td>
<td>112.8</td>
<td>80.9</td>
<td>67.5</td>
<td>41.2</td>
<td>31.9</td>
<td>24.8</td>
<td>21.3</td>
<td>19.2</td>
<td>14.5</td>
<td>12.0</td>
<td>6.32</td>
</tr>
<tr>
<td>1.75V/cell</td>
<td>201.4</td>
<td>177.5</td>
<td>138.8</td>
<td>114.2</td>
<td>83.3</td>
<td>70.5</td>
<td>43.2</td>
<td>32.5</td>
<td>25.1</td>
<td>21.6</td>
<td>19.3</td>
<td>14.6</td>
<td>12.1</td>
<td>6.38</td>
</tr>
<tr>
<td>1.70V/cell</td>
<td>211.7</td>
<td>184.7</td>
<td>145.9</td>
<td>115.5</td>
<td>84.4</td>
<td>71.5</td>
<td>43.9</td>
<td>33.0</td>
<td>25.5</td>
<td>21.8</td>
<td>19.4</td>
<td>14.8</td>
<td>12.3</td>
<td>6.44</td>
</tr>
<tr>
<td>1.65V/cell</td>
<td>215.1</td>
<td>187.7</td>
<td>148.3</td>
<td>116.4</td>
<td>85.1</td>
<td>72.1</td>
<td>44.4</td>
<td>33.2</td>
<td>25.8</td>
<td>22.2</td>
<td>19.4</td>
<td>15.0</td>
<td>12.4</td>
<td>6.51</td>
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<tr>
<td>1.60V/cell</td>
<td>218.1</td>
<td>190.3</td>
<td>150.4</td>
<td>116.9</td>
<td>86.6</td>
<td>72.7</td>
<td>44.7</td>
<td>33.3</td>
<td>26.0</td>
<td>22.4</td>
<td>19.5</td>
<td>15.1</td>
<td>12.5</td>
<td>6.58</td>
</tr>
</tbody>
</table>
LPL Series—Long Life Standby
LPL12-60 (12V60Ah)

Applications
- UPS and EPS
- Emergency light
- Railway signal and aircraft signal system
- Marine and power stations
- Alarm and security system
- Electronic apparatus and equipment
- Communication power supply, DC power supply

General Features
- 12 years design life (25°C)
- Grid refining technology and the thicker plates are used to extend the battery standby life and reduce the plate grid corrosion speed
- Using oxygen recombination technology: maintenance-free
- Unique vent valve design: control water losing, prevent air and spark going inside

Discharge Characteristics

<table>
<thead>
<tr>
<th>Charging Time (hours)</th>
<th>(V/cell)</th>
<th>(A)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>2.0</td>
<td>0C</td>
</tr>
<tr>
<td>0.02C</td>
<td>2.1</td>
<td>0.04C</td>
</tr>
<tr>
<td>0.04C</td>
<td>2.2</td>
<td>0.06C</td>
</tr>
<tr>
<td>0.06C</td>
<td>2.3</td>
<td>0.08C</td>
</tr>
<tr>
<td>0.08C</td>
<td>2.4</td>
<td>0.10C</td>
</tr>
</tbody>
</table>

Charge Volume
Charging Current
Charging Voltage

Effect of Temperature on Long Term Float Life

<table>
<thead>
<tr>
<th>Battery temperature (°C)</th>
<th>Float Life (year)</th>
</tr>
</thead>
<tbody>
<tr>
<td>20</td>
<td>0</td>
</tr>
<tr>
<td>25</td>
<td>2</td>
</tr>
<tr>
<td>30</td>
<td>4</td>
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<tr>
<td>40</td>
<td>6</td>
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<tr>
<td>50</td>
<td>8</td>
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<td>60</td>
<td>10</td>
</tr>
<tr>
<td>70</td>
<td>12</td>
</tr>
<tr>
<td>80</td>
<td>14</td>
</tr>
</tbody>
</table>

Temperature Effects in Relation to Battery Capacity

<table>
<thead>
<tr>
<th>Battery temperature (°C)</th>
<th>Capacity (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>-20</td>
<td>0</td>
</tr>
<tr>
<td>-10</td>
<td>20</td>
</tr>
<tr>
<td>0</td>
<td>40</td>
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<tr>
<td>10</td>
<td>60</td>
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<td>20</td>
<td>80</td>
</tr>
<tr>
<td>30</td>
<td>100</td>
</tr>
<tr>
<td>40</td>
<td>120</td>
</tr>
</tbody>
</table>

Standards
- Compliance with IEC 60896 standards, EU Battery Directive
- UL, CE Certified
- Manufactured in Leoch®TS16949, OHSAS 18001, ISO 9001 and ISO 14001 certified production facilities

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