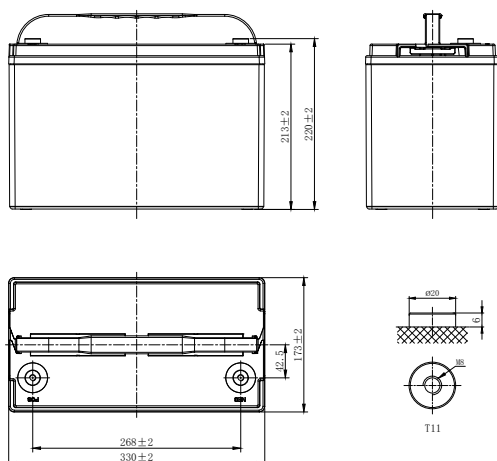


# LPL SERIES-LONG LIFE STANDBY

## LPL12-90(P) (12V90Ah)



### CHARACTERISTICS

| Item                          | Specifications                                                                                                                                                                                            |                     |
|-------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|
| Rated Voltage                 | 12V                                                                                                                                                                                                       |                     |
| Nominal Capacity (25°C)       | C <sub>10</sub> 1.80V/cell                                                                                                                                                                                | 90Ah                |
| Dimension                     | Length                                                                                                                                                                                                    | 330mm (13.0inches)  |
|                               | Width                                                                                                                                                                                                     | 173mm (6.81inches)  |
|                               | Container Height                                                                                                                                                                                          | 213mm (8.39inches)  |
|                               | Total Height                                                                                                                                                                                              | 220mm (8.66inches)  |
| Approx Weight                 | 27.1kg (59.7lbs)                                                                                                                                                                                          |                     |
| Terminal                      | T11(M8)                                                                                                                                                                                                   |                     |
| Container Material            | ABS (UL94 HB or V-0 optional)                                                                                                                                                                             |                     |
| Short-circuit current         | 2070A                                                                                                                                                                                                     |                     |
| Internal Resistance (25°C)    | Approx 4.6 mΩ (Fully charged)                                                                                                                                                                             |                     |
| Operating Temp. Range         | Discharge                                                                                                                                                                                                 | -15~50°C (5~122°F)  |
|                               | Charge                                                                                                                                                                                                    | -20~40°C (-4~104°F) |
|                               | Storage                                                                                                                                                                                                   | -15~40°C (5~104°F)  |
| Nominal Operating Temp. Range | 25±3°C (77±5°F)                                                                                                                                                                                           |                     |
| Max.Charging Current (25°C)   | 0.3C                                                                                                                                                                                                      |                     |
| Charge voltage (25°C)         | Float Charge                                                                                                                                                                                              | Equalization Charge |
|                               | 2.25-2.30V/cell                                                                                                                                                                                           | 2.35-2.40V/cell     |
| Temp. Coefficient             | -3mV/cell/°C                                                                                                                                                                                              | -5mV/cell/°C        |
|                               | 40°C (104°F)                                                                                                                                                                                              | 103%                |
| Effect of temp. to Capacity   | 25°C (77°F)                                                                                                                                                                                               | 100%                |
|                               | 0°C (32°F)                                                                                                                                                                                                | 86%                 |
| Self Discharge                | ≤3% per month at 25°C (77°F).<br>LPL series batteries may be stored up to 6 months at 25°C (77°F) and then a freshening charge is required.<br>For higher temperatures the time interval will be shorter. |                     |

### DISCHARGE TABLE

| Constant Current Discharge (Amperes) at 25°C (77°F)  |       |       |       |       |       |       |      |      |      |      |      |      |      |      |
|------------------------------------------------------|-------|-------|-------|-------|-------|-------|------|------|------|------|------|------|------|------|
| F.V/Time                                             | 10min | 15min | 20min | 30min | 45min | 1h    | 2h   | 3h   | 4h   | 5h   | 6h   | 8h   | 10h  | 20h  |
| 1.85V/cell                                           | 139.8 | 123.8 | 99.6  | 75.2  | 56.1  | 47.4  | 28.5 | 21.5 | 17.1 | 14.5 | 12.5 | 10.7 | 8.55 | 4.68 |
| 1.80V/cell                                           | 164.9 | 143.3 | 114.5 | 85.0  | 62.8  | 52.5  | 31.0 | 23.2 | 18.4 | 15.6 | 13.4 | 11.0 | 9.00 | 4.94 |
| 1.75V/cell                                           | 176.8 | 150.5 | 119.3 | 88.9  | 65.3  | 54.4  | 31.9 | 23.9 | 18.9 | 16.0 | 13.7 | 11.3 | 9.14 | 5.00 |
| 1.70V/cell                                           | 188.6 | 158.4 | 126.4 | 92.8  | 67.8  | 56.4  | 32.9 | 24.5 | 19.4 | 16.2 | 14.1 | 11.4 | 9.28 | 5.05 |
| 1.67V/cell                                           | 195.5 | 166.7 | 129.3 | 95.2  | 69.3  | 57.6  | 33.5 | 24.9 | 19.6 | 16.4 | 14.2 | 11.6 | 9.36 | 5.12 |
| 1.60V/cell                                           | 211.5 | 174.6 | 137.4 | 100.5 | 72.9  | 60.4  | 34.9 | 25.8 | 20.3 | 16.9 | 14.5 | 11.8 | 9.56 | 5.17 |
| Constant Power Discharge (Watts/cell) at 25°C (77°F) |       |       |       |       |       |       |      |      |      |      |      |      |      |      |
| F.V/Time                                             | 10min | 15min | 20min | 30min | 45min | 1h    | 2h   | 3h   | 4h   | 5h   | 6h   | 8h   | 10h  | 20h  |
| 1.85V/cell                                           | 267.7 | 235.9 | 188.6 | 147.0 | 108.8 | 92.2  | 57.4 | 42.1 | 33.6 | 28.6 | 24.5 | 20.1 | 16.8 | 9.35 |
| 1.80V/cell                                           | 311.8 | 268.3 | 215.2 | 165.0 | 120.8 | 101.3 | 61.1 | 45.4 | 36.1 | 30.7 | 26.2 | 21.4 | 17.9 | 9.74 |
| 1.75V/cell                                           | 330.3 | 279.6 | 223.6 | 170.9 | 124.8 | 104.3 | 62.0 | 46.4 | 36.9 | 31.2 | 26.7 | 21.8 | 18.1 | 9.79 |
| 1.70V/cell                                           | 347.7 | 292.6 | 233.0 | 176.0 | 128.5 | 107.4 | 64.1 | 47.5 | 37.7 | 31.8 | 27.2 | 22.3 | 18.4 | 9.87 |
| 1.67V/cell                                           | 357.6 | 301.2 | 238.1 | 180.0 | 130.7 | 109.1 | 65.0 | 48.1 | 38.1 | 32.2 | 27.4 | 22.3 | 18.5 | 9.97 |
| 1.60V/cell                                           | 379.1 | 314.5 | 249.5 | 187.5 | 136.0 | 113.4 | 67.2 | 49.6 | 39.2 | 33.0 | 28.1 | 22.8 | 18.9 | 10.1 |

# LPL SERIES-LONG LIFE STANDBY

LPL12-90(P) (12V90Ah)



## 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

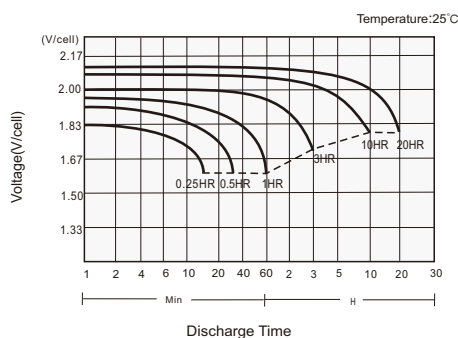
## GENERAL FEATURES

- 12 years design life (25°C)
- Lead calcium alloy, sealed design, no watering required
- Puncture resistant micro-porous glass mat separators extend life
- Unique technology optimizes power capacity, cell consistency, and long-term reliability
- Designed for a wide range of applications

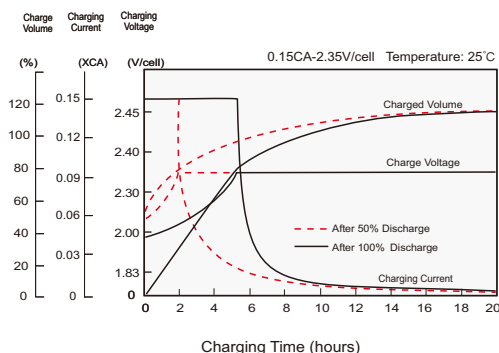
## STANDARDS

- Compliance with IEC 60896 standards, EU Battery Directive
- UL, CE Approved
- Manufactured in Leoch® IATF 16949, ISO 45001, ISO 9001 and ISO 14001 certified production facilities

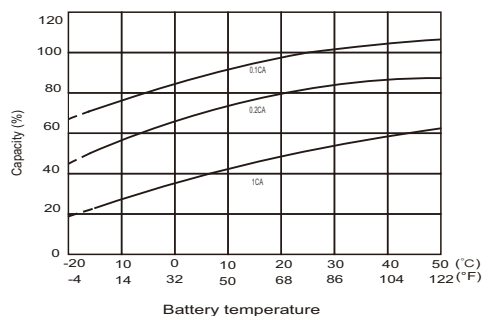
### Discharge Characteristics



### Charging Characteristics



### Effects of Temperature on Capacity



### Self Discharge Characteristics

