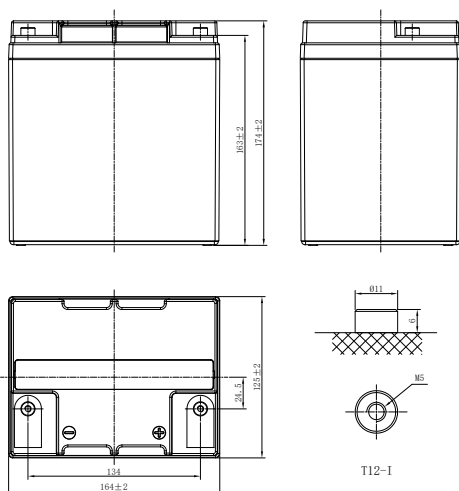


# LP SERIES-GENERAL PURPOSE

## LP12-28H (12V28Ah)



### CHARACTERISTICS

| Item                          | Specifications                                                                                                                                                                                           |                     |
|-------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|
| Rated Voltage                 | 12V                                                                                                                                                                                                      |                     |
| Nominal Capacity (25°C)       | C <sub>20</sub> 1.75V/cell                                                                                                                                                                               | 28Ah                |
| Dimension                     | Length                                                                                                                                                                                                   | 164mm (6.46inches)  |
|                               | Width                                                                                                                                                                                                    | 125mm (4.92inches)  |
|                               | Container Height                                                                                                                                                                                         | 174mm (6.85inches)  |
|                               | Total Height                                                                                                                                                                                             | 174mm (6.85inches)  |
| Approx Weight                 | 9.10kg (20.1lbs)                                                                                                                                                                                         |                     |
| Terminal                      | T12-I/T12(M5)                                                                                                                                                                                            |                     |
| Container Material            | ABS (UL94 HB or V-0 optional)                                                                                                                                                                            |                     |
| Short-circuit current         | 700A                                                                                                                                                                                                     |                     |
| Internal Resistance (25°C)    | Approx 14 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)         | Standby Use                                                                                                                                                                                              | Cycle Use           |
|                               | 2.25-2.30V/cell                                                                                                                                                                                          | 2.35-2.45V/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>LP 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                                             | 5min  | 10min | 15min | 20min | 30min | 45min | 1h   | 1.5h | 2h   | 3h   | 4h   | 5h   | 6h   | 8h   | 10h  | 20h  |
| 1.85V/cell                                           | 75.3  | 55.0  | 45.7  | 38.4  | 28.4  | 20.1  | 15.9 | 12.0 | 9.18 | 6.91 | 5.62 | 4.63 | 4.02 | 3.13 | 2.54 | 1.37 |
| 1.80V/cell                                           | 80.9  | 58.3  | 48.0  | 39.9  | 29.3  | 20.6  | 16.3 | 12.2 | 9.35 | 7.03 | 5.70 | 4.70 | 4.08 | 3.18 | 2.57 | 1.38 |
| 1.75V/cell                                           | 85.3  | 60.7  | 49.6  | 41.1  | 30.0  | 21.0  | 16.6 | 12.5 | 9.52 | 7.14 | 5.78 | 4.76 | 4.13 | 3.21 | 2.60 | 1.40 |
| 1.70V/cell                                           | 89.3  | 63.1  | 51.2  | 42.2  | 30.8  | 21.5  | 17.0 | 12.7 | 9.66 | 7.24 | 5.86 | 4.83 | 4.18 | 3.24 | 2.63 | 1.41 |
| 1.67V/cell                                           | 92.4  | 64.9  | 52.5  | 43.1  | 31.4  | 21.9  | 17.2 | 12.8 | 9.77 | 7.31 | 5.92 | 4.87 | 4.22 | 3.27 | 2.65 | 1.42 |
| 1.60V/cell                                           | 98.0  | 67.6  | 54.3  | 44.4  | 32.2  | 22.4  | 17.6 | 13.1 | 9.96 | 7.45 | 6.02 | 4.94 | 4.28 | 3.31 | 2.68 | 1.44 |
| Constant Power Discharge (Watts/cell) at 25°C (77°F) |       |       |       |       |       |       |      |      |      |      |      |      |      |      |      |      |
| F.V/Time                                             | 5min  | 10min | 15min | 20min | 30min | 45min | 1h   | 1.5h | 2h   | 3h   | 4h   | 5h   | 6h   | 8h   | 10h  | 20h  |
| 1.85V/cell                                           | 142.4 | 104.7 | 87.6  | 74.0  | 54.9  | 38.9  | 31.0 | 23.4 | 18.0 | 13.6 | 11.1 | 9.15 | 7.95 | 6.21 | 5.05 | 2.74 |
| 1.80V/cell                                           | 151.6 | 110.2 | 91.3  | 76.5  | 56.4  | 39.8  | 31.6 | 23.8 | 18.3 | 13.8 | 11.2 | 9.27 | 8.07 | 6.29 | 5.11 | 2.77 |
| 1.75V/cell                                           | 158.0 | 113.8 | 93.8  | 78.2  | 57.6  | 40.5  | 32.2 | 24.2 | 18.5 | 14.0 | 11.4 | 9.37 | 8.15 | 6.35 | 5.16 | 2.80 |
| 1.70V/cell                                           | 163.8 | 117.5 | 96.3  | 80.1  | 58.8  | 41.3  | 32.6 | 24.5 | 18.8 | 14.1 | 11.5 | 9.49 | 8.23 | 6.41 | 5.21 | 2.82 |
| 1.67V/cell                                           | 168.1 | 120.2 | 98.4  | 81.5  | 59.7  | 41.8  | 33.1 | 24.8 | 18.9 | 14.3 | 11.6 | 9.56 | 8.30 | 6.46 | 5.24 | 2.84 |
| 1.60V/cell                                           | 174.9 | 123.7 | 101.1 | 83.5  | 61.0  | 42.6  | 33.7 | 25.2 | 19.3 | 14.5 | 11.8 | 9.69 | 8.40 | 6.54 | 5.31 | 2.88 |

# LP SERIES-GENERAL PURPOSE

LP12-28H (12V28Ah)



## APPLICATIONS

- Uninterruptable Power Supply (UPS)
- Electric Power System (EPS)
- Emergency backup power supply
- Alarm and security system
- Communication power supply
- DC power supply
- Auto control system

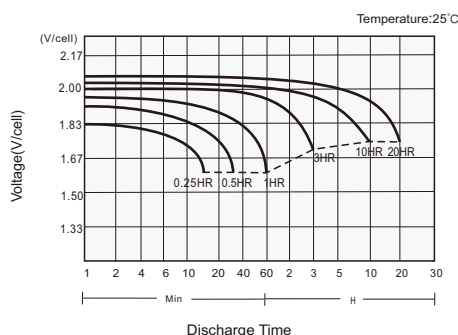
## GENERAL FEATURES

- 5 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

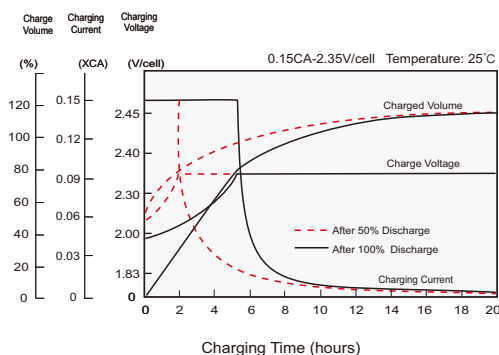
## STANDARDS

- 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

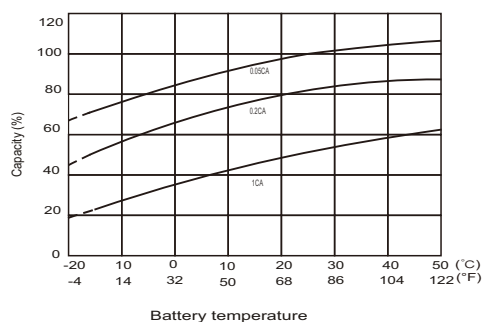
### Discharge Characteristics



### Charging Characteristics



### Effects of Temperature on Capacity



### Self Discharge Characteristics

