

# LP SERIES-General Purpose

## LP12-135 (12V135AH)

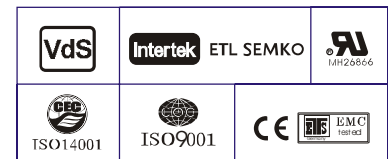
### Specification

|                                  |   |                               |
|----------------------------------|---|-------------------------------|
| Nominal Voltage                  | 12V   |                               |
| Nominal Capacity(10HR)           | 135.0AH   |                               |
| Dimensions                       | Length  | 345±3mm (13.6 inches)         |
|                                  | Width   | 172±2mm (6.77 inches)         |
|                                  | Container Height  | 274±3mm (10.79 inches)        |
|                                  | Total Height (with Terminal)  | 280±3mm (11.02 inches)        |
|                                  | Approx Weight   | Approx 41.2 kg (90.8lbs)      |
| Terminal                         | T11   |                               |
| Container Material               | ABS   |                               |
| Rated Capacity                   | 140.4AH/7.02A   | (20hr, 1.80V/cell, 25°C/77°F) |
|                                  | 135.0AH/13.5A   | (10hr, 1.80V/cell, 25°C/77°F) |
|                                  | 116AH/23.2A   | (5hr, 1.75V/cell, 25°C/77°F)  |
|                                  | 105.3AH/35.1A   | (3hr, 1.75V/cell, 25°C/77°F)  |
|                                  | 82.4AH/82.4A  | (1hr, 1.60V/cell, 25°C/77°F)  |
| Max. Discharge Current           | 1350A (5s)  |                               |
| Internal Resistance              | Approx 4.0mΩ  |                               |
| 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 40.5A. Voltage   |                               |
|                                  | 14.4V~15.0V at 25°C(77°F)Temp. Coefficient -30mV/°C   |                               |
| Standby Use                      | No limit on Initial Charging Current Voltage  |                               |
|                                  | 13.5V~13.8V at 25°C(77°F)Temp. Coefficient -20mV/°C   |                               |
| Capacity affected by Temperature | 40°C (104°F)  | 103%                          |
|                                  | 25°C (77°F)   | 100%                          |
|                                  | 0°C (32°F)  | 86%                           |
| Self Discharge                   | Leoch LP 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. |                               |



### Applications

- ◆ All purpose
- ◆ Uninterruptable Power Supply (UPS)
- ◆ Electric Power System (EPS)
- ◆ Emergency backup power supply
- ◆ Emergency light
- ◆ Railway signal
- ◆ Aircraft signal
- ◆ Alarm and security system
- ◆ Electronic apparatus and equipment
- ◆ Communication power supply
- ◆ DC power supply
- ◆ Auto control system



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

| F.V/Time   | 5min  | 10min | 15min | 20min | 30min | 45min | 1h   | 2h   | 3h   | 4h   | 5h   | 6h   | 8h   | 10h  | 20h  |
|------------|-------|-------|-------|-------|-------|-------|------|------|------|------|------|------|------|------|------|
| 1.85V/cell | 231.1 | 181.7 | 154.5 | 129.2 | 102.7 | 77.7  | 63.6 | 40.5 | 32.0 | 26.2 | 21.1 | 18.4 | 14.9 | 12.7 | 6.95 |
| 1.80V/cell | 310.1 | 232.1 | 186.7 | 152.7 | 121.2 | 90.4  | 71.3 | 44.2 | 34.5 | 28.0 | 22.7 | 19.7 | 15.8 | 13.5 | 7.02 |
| 1.75V/cell | 349.7 | 255.0 | 203.9 | 164.3 | 125.8 | 93.8  | 74.6 | 45.9 | 35.1 | 28.6 | 23.2 | 20.3 | 16.1 | 13.6 | 7.09 |
| 1.70V/cell | 385.1 | 278.0 | 217.7 | 172.7 | 130.9 | 97.6  | 76.9 | 47.7 | 36.1 | 29.3 | 23.8 | 20.7 | 16.3 | 13.8 | 7.22 |
| 1.65V/cell | 424.6 | 300.0 | 231.4 | 183.5 | 138.1 | 100.0 | 79.5 | 49.0 | 37.6 | 30.3 | 24.5 | 21.1 | 16.6 | 14.1 | 7.32 |
| 1.60V/cell | 468.3 | 325.7 | 247.5 | 195.4 | 145.8 | 104.2 | 82.4 | 50.7 | 38.8 | 31.3 | 25.3 | 21.6 | 16.7 | 14.2 | 7.36 |

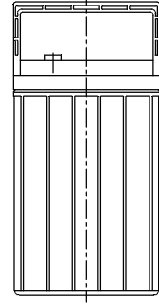
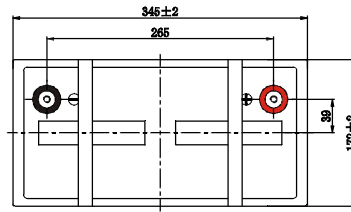
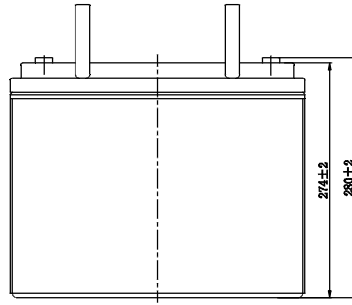
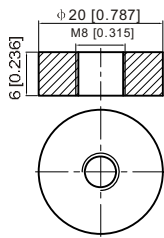
### Constant Power Discharge (Watts) at 25 °C (77°F)

| F.V/Time   | 5min  | 10min | 15min | 20min | 30min | 45min | 1h    | 2h   | 3h   | 4h   | 5h   | 6h   | 8h   | 10h  | 20h  |
|------------|-------|-------|-------|-------|-------|-------|-------|------|------|------|------|------|------|------|------|
| 1.85V/cell | 422.5 | 335.6 | 288.3 | 243.6 | 195.7 | 149.4 | 122.8 | 78.7 | 62.5 | 51.2 | 41.4 | 36.1 | 29.5 | 25.2 | 13.8 |
| 1.80V/cell | 561.0 | 423.7 | 343.6 | 283.7 | 227.4 | 172.4 | 136.8 | 85.3 | 66.9 | 54.4 | 44.2 | 38.6 | 31.1 | 26.7 | 13.9 |
| 1.75V/cell | 619.1 | 458.1 | 370.7 | 302.2 | 234.2 | 177.2 | 142.4 | 88.2 | 67.8 | 55.4 | 45.2 | 39.5 | 31.6 | 26.9 | 14.0 |
| 1.70V/cell | 662.8 | 488.0 | 390.3 | 315.3 | 242.4 | 183.6 | 146.5 | 91.5 | 69.6 | 56.7 | 46.3 | 40.3 | 32.0 | 27.2 | 14.3 |
| 1.65V/cell | 720.6 | 521.8 | 411.8 | 332.4 | 253.6 | 186.5 | 150.3 | 93.5 | 72.2 | 58.5 | 47.4 | 41.1 | 32.4 | 27.7 | 14.4 |
| 1.60V/cell | 776.4 | 553.6 | 433.1 | 350.2 | 265.8 | 193.3 | 154.8 | 96.2 | 74.1 | 60.1 | 48.8 | 41.8 | 32.7 | 27.9 | 14.5 |

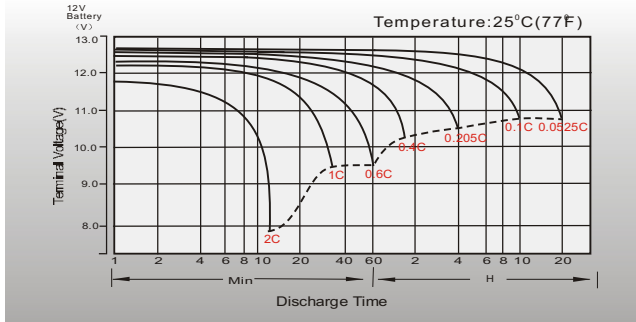
## Dimensions

### T11 Terminal

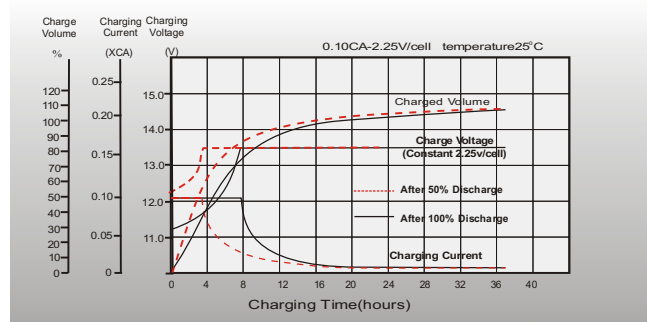
Unit: mm [inches]



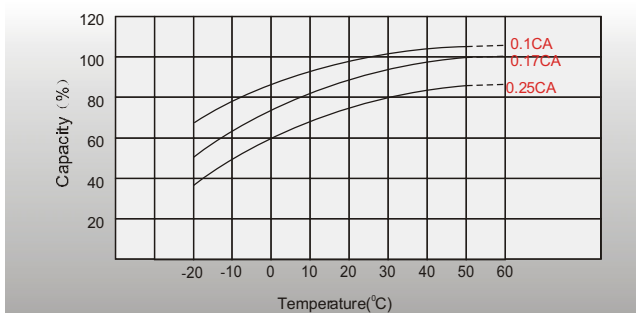
## Discharge Characteristics



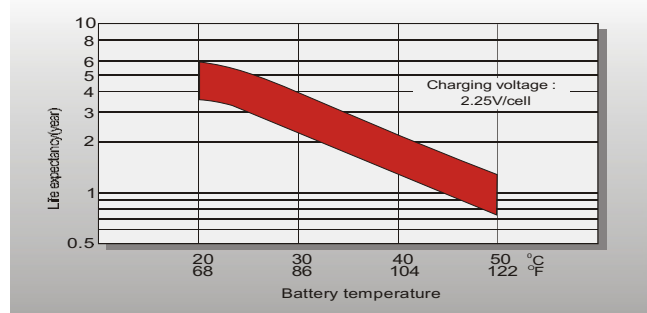
## Float Charging Characteristics



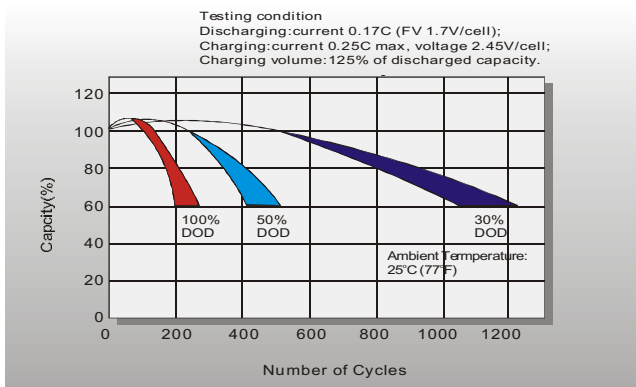
## Temperature Effects in Relation to Battery Capacity



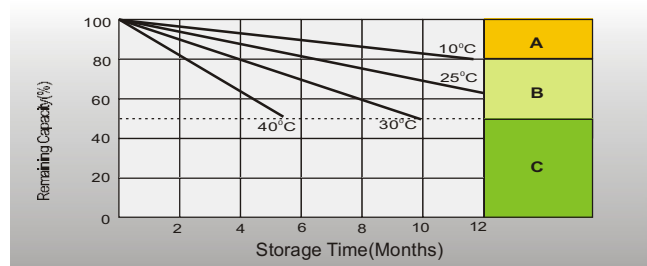
## Effect of Temperature on Long Term Float Life



## Cycle Life in Relation to Depth of Discharge



## Self Discharge Characteristics



**A** No supplementary charge required  
(Carry out supplementary charge before use if 100% capacity is required.)

**B** Supplementary charge required before use. Optional charging way as below:  
1. Charged for above 3 days at limited current 0.25CA and constant voltage 2.25V/cell.  
2. Charged for above 20 hours at limited current 0.25CA and constant voltage 2.45V/cell.  
3. Charged for 8-10 hours at limited current 0.05CA.

**C** Supplementary charge may often fail to recover the capacity.  
The battery should never be left standing till this is reached.

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