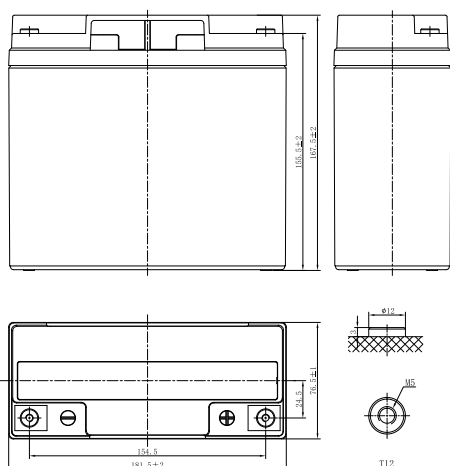


# LP SERIES-GENERAL PURPOSE

## LP12-20 (12V20Ah)



### CHARACTERISTICS

| Item                          | Specifications                                                                                                                                                                                           |                      |
|-------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|
| Rated Voltage                 | 12V                                                                                                                                                                                                      |                      |
| Nominal Capacity (25°C)       | C <sub>20</sub> 1.75V/cell                                                                                                                                                                               | 20Ah                 |
| Dimension                     | Length                                                                                                                                                                                                   | 181.5mm (7.15inches) |
|                               | Width                                                                                                                                                                                                    | 76.5mm (3.01inches)  |
|                               | Container Height                                                                                                                                                                                         | 167.5mm (6.59inches) |
|                               | Total Height                                                                                                                                                                                             | 167.5mm (6.59inches) |
| Approx Weight                 | 5.65kg (12.5lbs)                                                                                                                                                                                         |                      |
| Terminal                      | T12/T12-I(M5)                                                                                                                                                                                            |                      |
| Container Material            | ABS (UL94 HB or V-0 optional)                                                                                                                                                                            |                      |
| Short-circuit current         | 560A                                                                                                                                                                                                     |                      |
| Internal Resistance (25°C)    | Approx 16 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                                           | 62.2  | 42.6  | 33.2  | 27.0  | 19.9  | 14.5  | 11.9 | 8.71 | 6.85 | 4.94 | 3.94 | 3.35 | 2.87 | 2.26 | 1.85 | 0.978 |
| 1.80V/cell                                           | 66.9  | 45.2  | 34.8  | 28.1  | 20.5  | 14.9  | 12.2 | 8.89 | 6.97 | 5.02 | 3.99 | 3.40 | 2.91 | 2.29 | 1.87 | 0.989 |
| 1.75V/cell                                           | 70.5  | 47.0  | 36.0  | 28.8  | 21.0  | 15.2  | 12.4 | 9.06 | 7.10 | 5.10 | 4.05 | 3.44 | 2.95 | 2.32 | 1.89 | 1.00  |
| 1.70V/cell                                           | 73.8  | 48.9  | 37.2  | 29.7  | 21.6  | 15.6  | 12.7 | 9.21 | 7.20 | 5.18 | 4.10 | 3.49 | 2.98 | 2.34 | 1.91 | 1.01  |
| 1.67V/cell                                           | 76.4  | 50.3  | 38.1  | 30.3  | 21.9  | 15.8  | 12.9 | 9.33 | 7.28 | 5.23 | 4.14 | 3.52 | 3.01 | 2.36 | 1.92 | 1.02  |
| 1.60V/cell                                           | 81.0  | 52.4  | 39.4  | 31.2  | 22.5  | 16.2  | 13.1 | 9.53 | 7.43 | 5.32 | 4.22 | 3.58 | 3.05 | 2.39 | 1.95 | 1.03  |
| 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                                           | 117.7 | 81.2  | 63.5  | 52.0  | 38.4  | 28.2  | 23.1 | 17.0 | 13.4 | 9.71 | 7.76 | 6.62 | 5.68 | 4.48 | 3.67 | 1.96  |
| 1.80V/cell                                           | 125.3 | 85.4  | 66.3  | 53.8  | 39.4  | 28.8  | 23.6 | 17.3 | 13.6 | 9.85 | 7.85 | 6.70 | 5.76 | 4.54 | 3.72 | 1.98  |
| 1.75V/cell                                           | 130.6 | 88.2  | 68.0  | 55.0  | 40.3  | 29.3  | 24.0 | 17.6 | 13.8 | 10.0 | 7.95 | 6.78 | 5.82 | 4.59 | 3.75 | 2.00  |
| 1.70V/cell                                           | 135.4 | 91.1  | 69.9  | 56.3  | 41.1  | 29.9  | 24.4 | 17.8 | 14.0 | 10.1 | 8.05 | 6.86 | 5.88 | 4.63 | 3.79 | 2.02  |
| 1.67V/cell                                           | 139.0 | 93.2  | 71.4  | 57.3  | 41.7  | 30.3  | 24.7 | 18.0 | 14.1 | 10.2 | 8.11 | 6.91 | 5.93 | 4.66 | 3.81 | 2.03  |
| 1.60V/cell                                           | 144.6 | 95.9  | 73.3  | 58.7  | 42.6  | 30.8  | 25.1 | 18.3 | 14.4 | 10.4 | 8.23 | 7.00 | 6.00 | 4.73 | 3.86 | 2.05  |

# LP SERIES-GENERAL PURPOSE

## LP12-20 (12V20Ah)



### 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

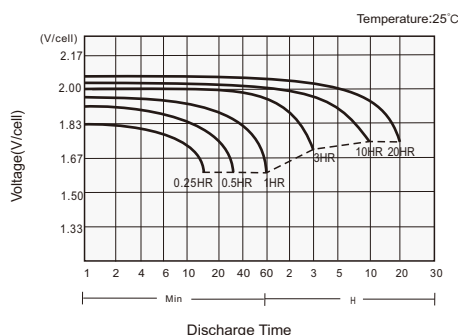
### GENERAL FEATURES

- 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

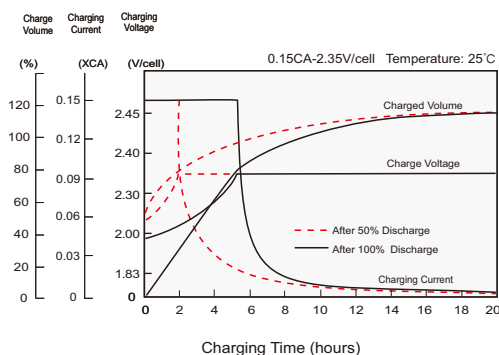
### STANDARDS

- Compliance with IEC 60896 standards, EU Battery Directive
- UL, CE Approved

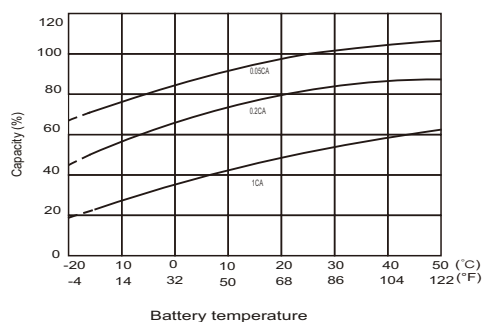
#### Discharge Characteristics



#### Charging Characteristics



#### Effects of Temperature on Capacity



#### Self Discharge Characteristics

