

# FP12-20

## Datasheet

**FULBAT®**  
GENERAL PURPOSE BATTERY



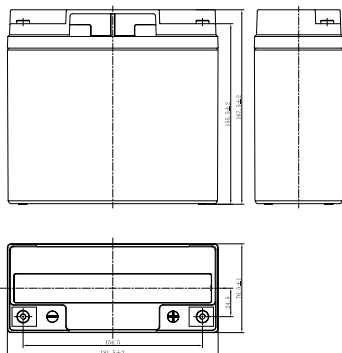
**AGM**

**NON-SPILLABLE**

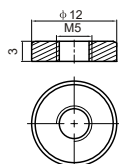
FP Series are general purpose batteries with 5 years design life in float service. With advanced AGM valve regulated technology and high purity raw material, the FP series batteries ensure high performance and reliable standby service life. They have been designed specifically for applications such as security & alarm systems, UPS, Telecom, power grid, medical equipment and emergency lighting. It can also be used for light cycling use. For intensive cycling, the FPC or FPG cyclic ranges are recommended.

### DIMENSIONS & WEIGHT

|                     |           |
|---------------------|-----------|
| <b>Length</b>       | 181±2mm   |
| <b>Width</b>        | 76.5±2mm  |
| <b>Total height</b> | 167.5±2mm |
| <b>Gross weight</b> | 5.65kg    |



### TERMINAL



### SPECIFICATIONS

|                                      |                                                                                                                                                                               |
|--------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Nominal voltage</b>               | 12V (6 cells)                                                                                                                                                                 |
| <b>Nominal capacity</b>              | 20.0Ah (20hr)                                                                                                                                                                 |
| <b>Design life</b>                   | 5 years at 25°C                                                                                                                                                               |
| <b>Internal resistance</b>           | Approx 16mΩ                                                                                                                                                                   |
| <b>Terminal</b>                      | T12                                                                                                                                                                           |
| <b>Max. discharge current</b>        | 300.0A (5 sec)                                                                                                                                                                |
| <b>Reference capacity</b>            | 20.00Ah (20hr, 1.75V/cell, 25°C)<br>18.90Ah (10hr, 1.75V/cell, 25°C)<br>17.20Ah (5hr, 1.75V/cell, 25°C)<br>15.30Ah (3hr, 1.75V/cell, 25°C)<br>13.10Ah (1hr, 1.60V/cell, 25°C) |
| <b>Charge voltage</b>                | 13.5V ~ 13.8V 25°C                                                                                                                                                            |
| <b>Standby use voltage</b>           | Temperature compensation:<br>-3mV/°C/Cell                                                                                                                                     |
| <b>Cycle use voltage</b>             | 14.4V ~ 15.0V 25°C                                                                                                                                                            |
|                                      | Temperature compensation:<br>-5mV/°C/Cell                                                                                                                                     |
| <b>Operating temp. range</b>         | Discharge: -15°C ~ 50°C<br>Charge: -20°C ~ 40°C<br>Storage: -15°C ~ 40°C                                                                                                      |
| <b>Nominal operating temp. range</b> | 25°C ± 3°C                                                                                                                                                                    |
| <b>Self discharge</b>                | Can be stored for up to 6 months at 25°C and then recharging is recommended. Monthly self-discharge ratio is less than 3% at 25°C                                             |
| <b>Capacity affected by temp.</b>    | 40°C 103%<br>25°C 100%<br>0°C 86%                                                                                                                                             |
| <b>Container material</b>            | A.B.S. UL94-HB   UL94-V0 optional                                                                                                                                             |

### APPROVALS

ISO9001 - Quality management system  
ISO14001 - Environmental management System  
Approved for transport by Air (IATA)  
Designed in accordance with IEC 60896-21/22

### APPLICATIONS



Emergency  
& security



Medical



UPS & data center

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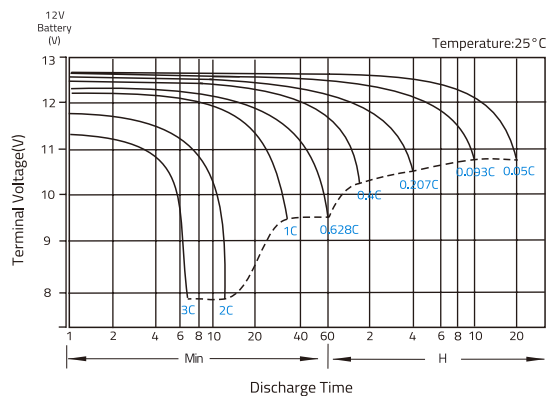
### CONSTANT CURRENT DISCHARGE (A) @25°C

| F.V/Time   | 10min | 15min | 20min | 30min | 45min | 1h   | 2h   | 3h   | 4h   | 5h   | 6h   | 8h   | 10h  | 20h   |
|------------|-------|-------|-------|-------|-------|------|------|------|------|------|------|------|------|-------|
| 1.85V/cell | 42.6  | 33.2  | 27.0  | 19.9  | 14.5  | 11.9 | 6.85 | 4.94 | 3.94 | 3.35 | 2.87 | 2.26 | 1.85 | 0.978 |
| 1.80V/cell | 45.2  | 34.8  | 28.1  | 20.5  | 14.9  | 12.2 | 6.97 | 5.02 | 3.99 | 3.40 | 2.91 | 2.29 | 1.87 | 0.989 |
| 1.75V/cell | 47.0  | 36.0  | 28.8  | 21.0  | 15.2  | 12.4 | 7.10 | 5.10 | 4.05 | 3.44 | 2.95 | 2.32 | 1.89 | 1.00  |
| 1.70V/cell | 48.9  | 37.2  | 29.7  | 21.6  | 15.6  | 12.7 | 7.20 | 5.18 | 4.10 | 3.49 | 2.98 | 2.34 | 1.91 | 1.01  |
| 1.67V/cell | 50.3  | 38.1  | 30.3  | 21.9  | 15.8  | 12.9 | 7.28 | 5.23 | 4.14 | 3.52 | 3.01 | 2.36 | 1.92 | 1.02  |
| 1.60V/cell | 52.4  | 39.4  | 31.2  | 22.5  | 16.2  | 13.1 | 7.43 | 5.32 | 4.22 | 3.58 | 3.05 | 2.39 | 1.95 | 1.03  |

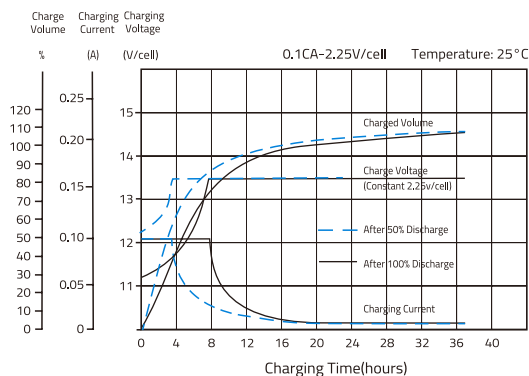
### CONSTANT POWER DISCHARGE (W/CELL) @25°C

| F.V/Time   | 10min | 15min | 20min | 30min | 45min | 1h   | 2h   | 3h   | 4h   | 5h   | 6h   | 8h   | 10h  | 20h  |
|------------|-------|-------|-------|-------|-------|------|------|------|------|------|------|------|------|------|
| 1.85V/cell | 81.2  | 63.5  | 52.0  | 38.4  | 28.2  | 23.1 | 13.4 | 9.71 | 7.76 | 6.62 | 5.68 | 4.48 | 3.67 | 1.96 |
| 1.80V/cell | 85.4  | 66.3  | 53.8  | 39.4  | 28.8  | 23.6 | 13.6 | 9.85 | 7.85 | 6.70 | 5.76 | 4.54 | 3.72 | 1.98 |
| 1.75V/cell | 88.2  | 68.0  | 55.0  | 40.3  | 29.3  | 24.0 | 13.8 | 10.0 | 7.95 | 6.78 | 5.82 | 4.59 | 3.75 | 2.00 |
| 1.70V/cell | 91.1  | 69.9  | 56.3  | 41.1  | 29.9  | 24.4 | 14.0 | 10.1 | 8.05 | 6.86 | 5.88 | 4.63 | 3.79 | 2.02 |
| 1.67V/cell | 93.2  | 71.4  | 57.3  | 41.7  | 30.3  | 24.7 | 14.1 | 10.2 | 8.11 | 6.91 | 5.93 | 4.66 | 3.81 | 2.03 |
| 1.60V/cell | 95.9  | 73.3  | 58.7  | 42.6  | 30.8  | 25.1 | 14.4 | 10.4 | 8.23 | 7.00 | 6.00 | 4.73 | 3.86 | 2.05 |

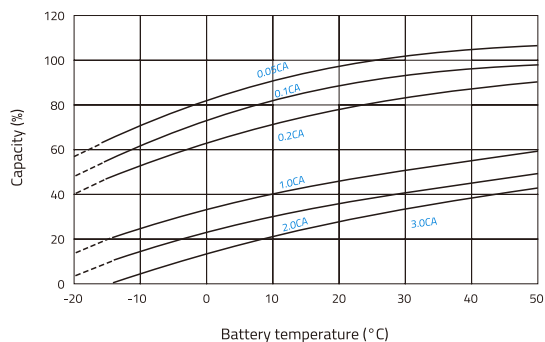
### DISCHARGE CHARACTERISTICS



### FLOAT CHARGING CHARACTERISTICS



### TEMPERATURE IN RELATION TO BATTERY CAPACITY



### TEMPERATURE ON LONG TERM FLOAT LIFE

