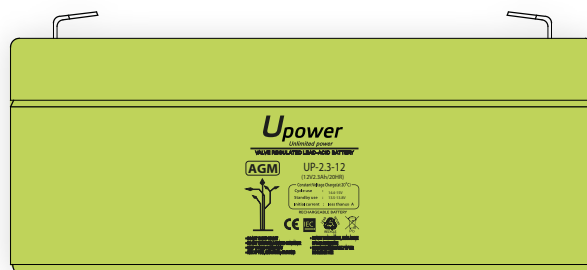


UP Series UP2.3-12 GENERAL PURPOSE AGM



Main Features

- High Reliability**

Extensive control processes, from raw materials to delivery to the end customer, within the international quality standards implemented in the company.

- Valve Regulated Lead Acid batteries**

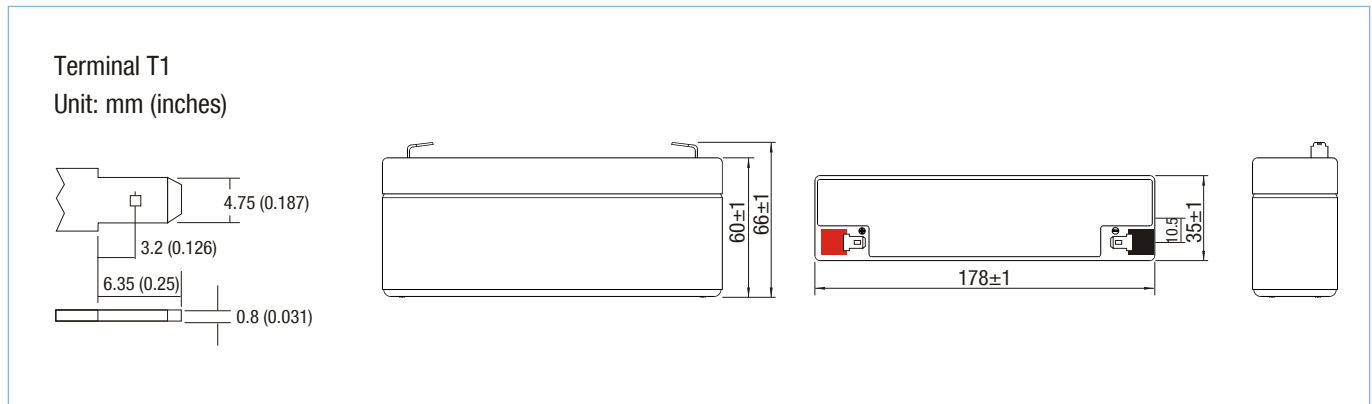
Designed for better gas recombination, with minimal hydrogen losses, aid to inner pressure regulation, increasing its performance and security.

Technical Specifications

| | |
|-------------------------------------|---|
| Nominal Voltage (V) | 12 |
| Nominal Capacity (20 Hr) | 2.3 Ah |
| Dimensions | Length: 178 ± 2mm (7.00 inches) |
| | Width: 35 ± 1mm (1.38 inches) |
| | Container Height: 60 ± 1mm (2.36 inches) |
| | Total Height (+terminal): 66 ± 1mm (2.60 inches) |
| Approx. Weight | 0.96 kg (2 lbs) |
| Terminal | T1 |
| Container Material | ABS |
| Rated Capacity | 2.30 Ah / 0.115 A (20hr, 1.80V/cell, 25°C / 77°F) |
| | 2.14 Ah / 0.214 A (10hr, 1.80V/cell, 25°C / 77°F) |
| | 1.95 Ah / 0.39 A (5hr, 1.75V/cell, 25°C / 77°F) |
| | 1.79 Ah / 0.59 A (3hr, 1.75V/cell, 25°C / 77°F) |
| | 1.44 Ah / 1.44 A (1hr, 1.60V/cell, 25°C / 77°F) |
| Maximum Discharge Current | 34.5 A (5s) |
| Internal Resistance | Approx. 90 mΩ |
| Operating Temperature Range | Discharge: -15 ~ 50°C (5 ~ 122°F) |
| | Charge: 0 ~ 40°C (32 ~ 104°F) |
| | Storage: -15 ~ 40°C (5 ~ 104°F) |
| Nominal Operating Temperature Range | 25 ± 3°C (77 ± 5°F) |
| Cycle Use | Initial Charging Current less than 0.69 A Voltage. 14.4~15V at 25°C (77°F) Temp. Coefficient -30mV/°C |
| Standby Use | No limit on Initial Charging Current Voltage. 13.5~13.8V 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 | Batteries may be stored for up to 6 months at 25°C (77°F) and then a freshening charge is required. |



Battery Dimensions

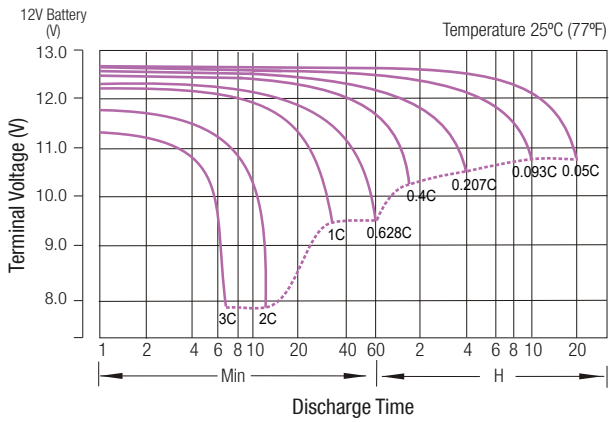


Battery Discharge Tables

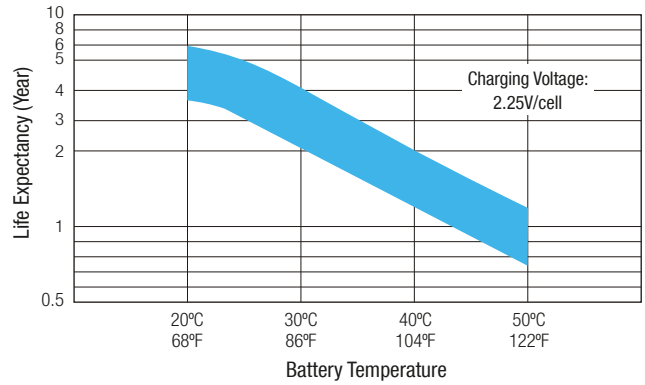
| Constant Current Discharge (Amperes) at 25°C (77°F) | | | | | | | | | | | | | | | |
|---|------|-------|-------|-------|-------|-------|------|------|------|------|-------|-------|-------|-------|-------|
| F.V/Time | 5min | 10min | 15min | 20min | 30min | 45min | 1h | 2h | 3h | 4h | 5h | 6h | 8h | 10h | 20h |
| 1.85V/cell | 4.38 | 3.36 | 2.79 | 2.41 | 1.86 | 1.37 | 1.16 | 0.68 | 0.54 | 0.44 | 0.355 | 0.308 | 0.248 | 0.207 | 0.114 |
| 1.80V/cell | 5.88 | 4.30 | 3.37 | 2.85 | 2.20 | 1.60 | 1.30 | 0.75 | 0.58 | 0.46 | 0.381 | 0.330 | 0.263 | 0.214 | 0.115 |
| 1.75V/cell | 6.63 | 4.72 | 3.68 | 3.06 | 2.28 | 1.66 | 1.36 | 0.77 | 0.59 | 0.47 | 0.391 | 0.339 | 0.268 | 0.220 | 0.116 |
| 1.70V/cell | 7.30 | 5.15 | 3.93 | 3.22 | 2.37 | 1.72 | 1.40 | 0.79 | 0.60 | 0.49 | 0.401 | 0.346 | 0.272 | 0.224 | 0.118 |
| 1.65V/cell | 8.05 | 5.55 | 4.17 | 3.42 | 2.51 | 1.77 | 1.43 | 0.81 | 0.63 | 0.50 | 0.412 | 0.354 | 0.276 | 0.229 | 0.120 |
| 1.60V/cell | 8.88 | 6.03 | 4.46 | 3.64 | 2.65 | 1.84 | 1.44 | 0.84 | 0.65 | 0.52 | 0.426 | 0.362 | 0.279 | 0.231 | 0.121 |

| 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 | 8.01 | 6.21 | 5.20 | 4.54 | 3.55 | 2.64 | 2.23 | 1.33 | 1.04 | 0.85 | 0.696 | 0.605 | 0.490 | 0.411 | 0.226 |
| 1.80V/cell | 10.6 | 7.85 | 6.20 | 5.29 | 4.12 | 3.04 | 2.49 | 1.44 | 1.12 | 0.90 | 0.743 | 0.647 | 0.518 | 0.423 | 0.227 |
| 1.75V/cell | 11.7 | 8.48 | 6.69 | 5.64 | 4.25 | 3.13 | 2.59 | 1.49 | 1.13 | 0.92 | 0.760 | 0.662 | 0.526 | 0.433 | 0.229 |
| 1.70V/cell | 12.6 | 9.04 | 7.04 | 5.88 | 4.40 | 3.24 | 2.66 | 1.52 | 1.16 | 0.94 | 0.778 | 0.675 | 0.533 | 0.442 | 0.233 |
| 1.65V/cell | 13.7 | 9.66 | 7.43 | 6.20 | 4.60 | 3.29 | 2.70 | 1.53 | 1.21 | 0.97 | 0.797 | 0.688 | 0.540 | 0.450 | 0.236 |
| 1.60V/cell | 14.7 | 10.25 | 7.81 | 6.53 | 4.82 | 3.41 | 2.72 | 1.59 | 1.24 | 1.00 | 0.820 | 0.700 | 0.544 | 0.454 | 0.237 |

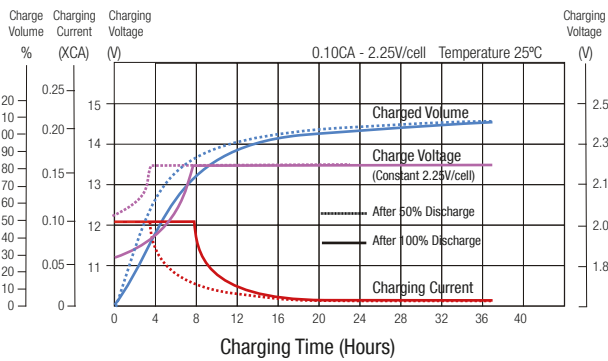
Discharge Characteristics



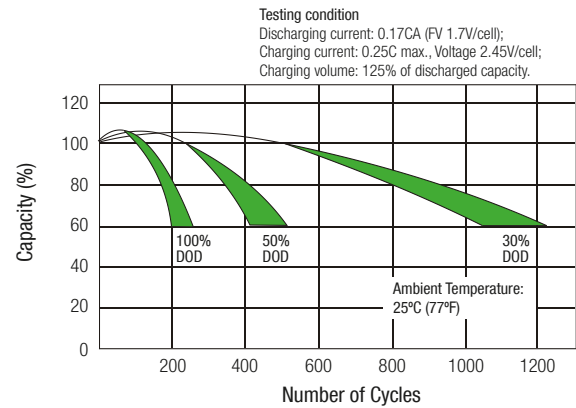
Effect of Temperature on Long Term Float Life



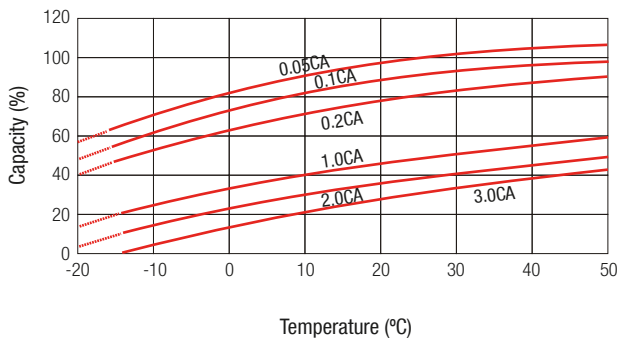
Float Charging Characteristics



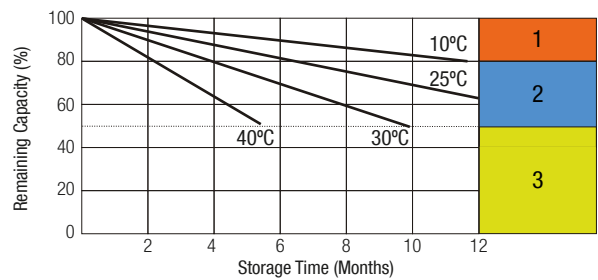
Cycle Life in Relation to Depth of Discharge



Temperature Effects in Relation to Battery Capacity



Self Discharge Characteristics



- 1** No supplementary charge required (Carry out supplementary charge before use if 100% capacity is required).
- 2** 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.
- 3** Supplementary charge may often fail to recover the capacity. The battery should never be left standing till this is recharged.