

## UP Series UP2.2-12

GENERAL PURPOSE AGM



### Main Features

- **High Reliability**

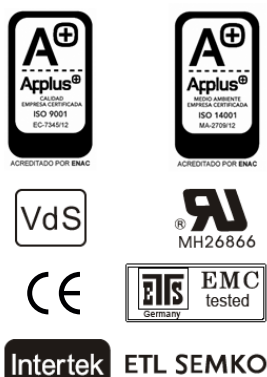
Extensive control processes, from raw materials to delivery to the end customer, within the international quality standards implemented in the company.

- **Valve Regulated Lead Acid batteries**

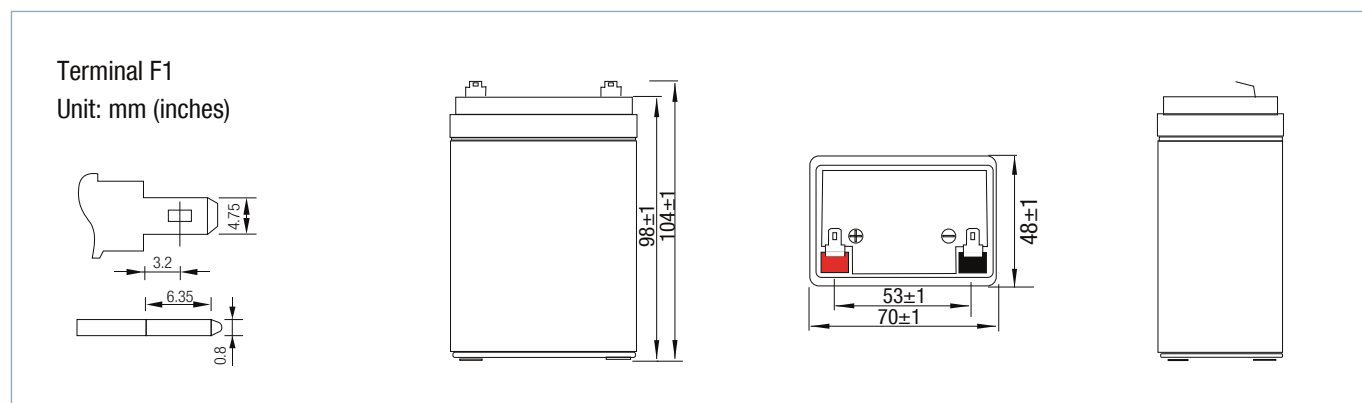
Designed for better gas recombination, with minimal hydrogen losses, aid to inner pressure regulation, increasing its performance and security.

### Technical Specifications

|                                     |                                                                                                       |
|-------------------------------------|-------------------------------------------------------------------------------------------------------|
| Nominal Voltage (V)                 | 12                                                                                                    |
| Nominal Capacity (20 Hr)            | 2.2 Ah                                                                                                |
| Dimensions                          | Length: 178 ± 2mm (7.00 inches)                                                                       |
|                                     | Width: 35 ± 1mm (1.38 inches)                                                                         |
|                                     | Container Height: 64 ± 1mm (2.52 inches)                                                              |
|                                     | Total Height (+terminal): 70 ± 1mm (2.76 inches)                                                      |
| Approx. Weight                      | 0.80 kg (1.76 lbs)                                                                                    |
| Terminal                            | F1                                                                                                    |
| Container Material                  | ABS                                                                                                   |
| Rated Capacity                      | 2.20 Ah / 0.110 A (20hr, 1.80V/cell, 25°C / 77°F)                                                     |
|                                     | 2.05 Ah / 0.205 A (10hr, 1.80V/cell, 25°C / 77°F)                                                     |
|                                     | 1.85 Ah / 0.37 A (5hr, 1.75V/cell, 25°C / 77°F)                                                       |
|                                     | 1.68 Ah / 0.56 A (3hr, 1.75V/cell, 25°C / 77°F)                                                       |
|                                     | 1.38 Ah / 1.38 A (1hr, 1.60V/cell, 25°C / 77°F)                                                       |
| Maximum Discharge Current           | 33 A (5s)                                                                                             |
| Internal Resistance                 | Approx. 100 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 0.66 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

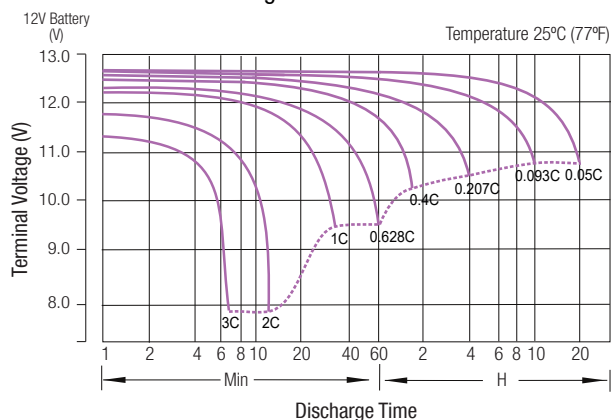


### Battery Discharge Tables

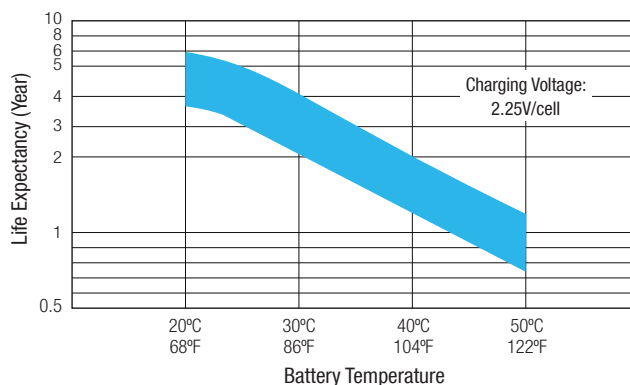
| Constant Current Discharge (Amperes) at 25°C (77°F) |      |       |       |       |       |       |      |      |      |      |       |       |       |       |       |
|-----------------------------------------------------|------|-------|-------|-------|-------|-------|------|------|------|------|-------|-------|-------|-------|-------|
| F.V/Time                                            | 5min | 10min | 15min | 20min | 30min | 45min | 1h   | 2h   | 3h   | 4h   | 5h    | 6h    | 8h    | 10h   | 20h   |
| 1.85V/cell                                          | 4.19 | 3.22  | 2.67  | 2.30  | 1.78  | 1.31  | 1.11 | 0.65 | 0.51 | 0.42 | 0.339 | 0.295 | 0.237 | 0.198 | 0.109 |
| 1.80V/cell                                          | 5.62 | 4.11  | 3.22  | 2.72  | 2.10  | 1.53  | 1.24 | 0.71 | 0.55 | 0.44 | 0.364 | 0.316 | 0.252 | 0.205 | 0.110 |
| 1.75V/cell                                          | 6.34 | 4.52  | 3.52  | 2.93  | 2.18  | 1.58  | 1.30 | 0.74 | 0.56 | 0.45 | 0.374 | 0.325 | 0.256 | 0.210 | 0.111 |
| 1.70V/cell                                          | 6.98 | 4.92  | 3.75  | 3.08  | 2.27  | 1.65  | 1.34 | 0.76 | 0.58 | 0.47 | 0.383 | 0.331 | 0.260 | 0.214 | 0.113 |
| 1.65V/cell                                          | 7.70 | 5.31  | 3.99  | 3.27  | 2.40  | 1.69  | 1.37 | 0.77 | 0.60 | 0.49 | 0.394 | 0.339 | 0.264 | 0.219 | 0.115 |
| 1.60V/cell                                          | 8.49 | 5.77  | 4.27  | 3.48  | 2.53  | 1.76  | 1.38 | 0.80 | 0.62 | 0.50 | 0.407 | 0.346 | 0.267 | 0.221 | 0.115 |

| 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                                      | 7.66  | 5.94  | 4.97  | 4.34  | 3.40  | 2.52  | 2.13 | 1.27 | 1.00 | 0.81 | 0.666 | 0.579 | 0.469 | 0.393 | 0.216 |
| 1.80V/cell                                      | 10.17 | 7.50  | 5.93  | 5.06  | 3.95  | 2.91  | 2.38 | 1.38 | 1.07 | 0.86 | 0.711 | 0.619 | 0.496 | 0.404 | 0.218 |
| 1.75V/cell                                      | 11.23 | 8.11  | 6.40  | 5.39  | 4.06  | 2.99  | 2.48 | 1.42 | 1.08 | 0.88 | 0.727 | 0.633 | 0.503 | 0.415 | 0.219 |
| 1.70V/cell                                      | 12.02 | 8.64  | 6.73  | 5.62  | 4.20  | 3.10  | 2.55 | 1.46 | 1.11 | 0.90 | 0.744 | 0.646 | 0.510 | 0.423 | 0.223 |
| 1.65V/cell                                      | 13.07 | 9.24  | 7.10  | 5.93  | 4.40  | 3.15  | 2.59 | 1.47 | 1.15 | 0.93 | 0.762 | 0.658 | 0.517 | 0.431 | 0.226 |
| 1.60V/cell                                      | 14.08 | 9.81  | 7.47  | 6.25  | 4.61  | 3.26  | 2.60 | 1.52 | 1.18 | 0.96 | 0.785 | 0.670 | 0.521 | 0.435 | 0.227 |

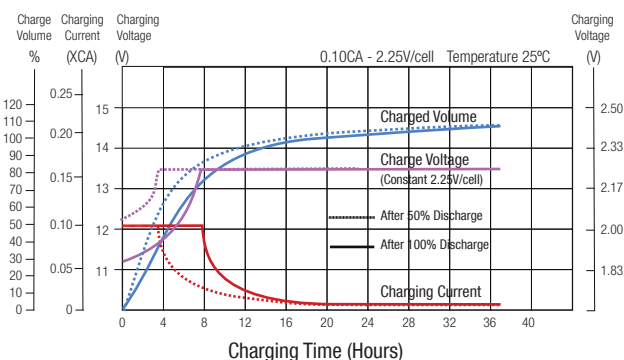
### Discharge Characteristics



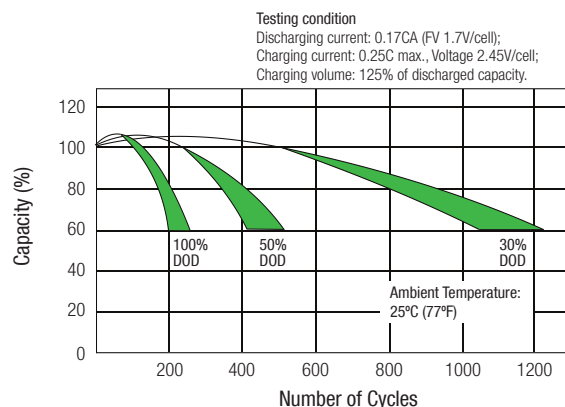
### Effect of Temperature on Long Term Float Life



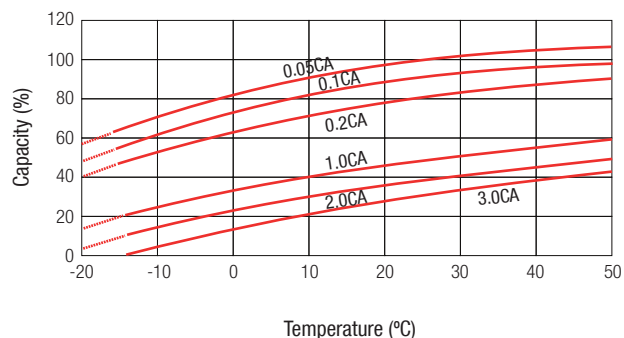
### Float Charging Characteristics



### Cycle Life in Relation to Depth of Discharge



### Temperature Effects in Relation to Battery Capacity



### Self Discharge Characteristics

