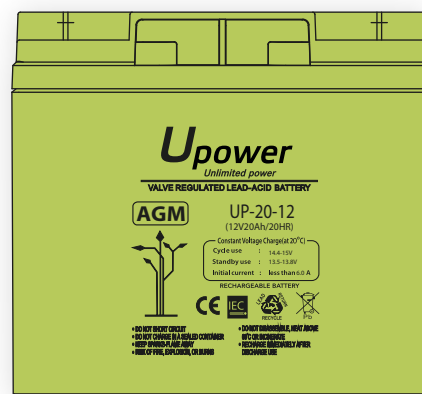


UP Series UP20-12

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**

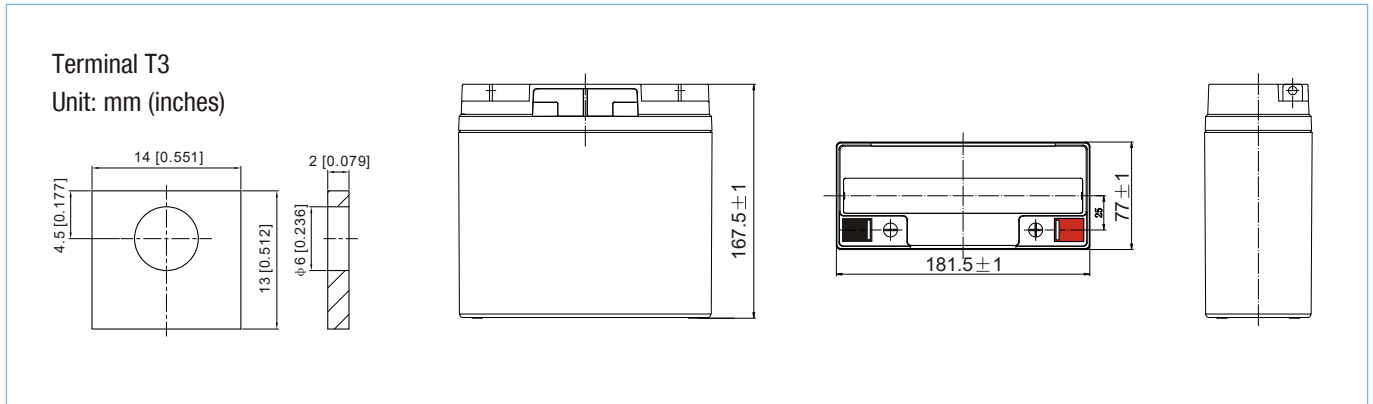
Designed for better gas recombination, with minimal hydrogen losses, aid to inner pressure regulation, increasing its performance and security.

Technical Specifications

Nominal Voltage (V)	12
Nominal Capacity (20 Hr)	20.0 Ah
Dimensions	Length: 181.5 ± 1mm (7.14 inches)
	Width: 77 ± 1mm (3.03 inches)
	Container Height: 167.5 ± 1mm (6.59 inches)
	Total Height (+terminal): 167.5 ± 1mm (6.59 inches)
Approx. Weight	5.78 kg (12.74 lbs)
Terminal	T3 / T12
Container Material	ABS
Rated Capacity	20.0 Ah / 1.00 A (20hr, 1.80V/cell, 25°C / 77°F)
	18.6 Ah / 1.86 A (10hr, 1.80V/cell, 25°C / 77°F)
	17.0 Ah / 3.40 A (5hr, 1.75V/cell, 25°C / 77°F)
	15.3 Ah / 5.10 A (3hr, 1.75V/cell, 25°C / 77°F)
	12.56 Ah / 12.56 A (1hr, 1.60V/cell, 25°C / 77°F)
Maximum Discharge Current	300 A (5s)
Internal Resistance	Approx. 15 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 6.0 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

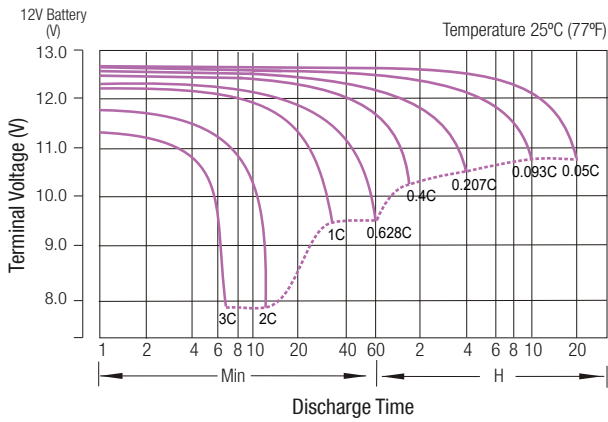
Constant Current Discharge (Amperes) at 25°C (77°F)

F.V/Time	5min	10min	15min	20min	30min	45min	1h	2h	3h	4h	5h	6h	8h	10h	20h
1.85V/cell	38.1	29.2	24.2	20.9	16.2	11.9	10.1	5.95	4.65	3.78	3.09	2.68	2.16	1.80	0.99
1.80V/cell	51.1	37.4	29.3	24.8	19.1	13.9	11.3	6.49	5.01	4.04	3.31	2.87	2.29	1.86	1.00
1.75V/cell	57.6	41.1	32.0	26.6	19.8	14.4	11.8	6.73	5.10	4.13	3.40	2.95	2.33	1.91	1.01
1.70V/cell	63.5	44.8	34.1	28.0	20.7	15.0	12.2	6.90	5.24	4.24	3.49	3.01	2.36	1.95	1.03
1.65V/cell	70.0	48.3	36.3	29.7	21.8	15.4	12.4	7.00	5.47	4.39	3.58	3.08	2.40	1.99	1.04
1.60V/cell	77.2	52.4	38.8	31.7	23.0	16.0	12.6	7.30	5.63	4.52	3.70	3.14	2.42	2.01	1.05

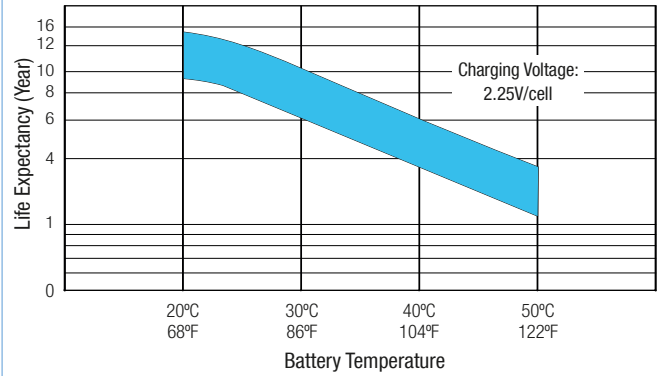
Constant Power Discharge (Watts) at 25°C (77°F)

F.V/Time	5min	10min	15min	20min	30min	45min	1h	2h	3h	4h	5h	6h	8h	10h	20h
1.85V/cell	69.6	54.0	45.2	39.5	30.9	22.9	19.4	11.6	9.07	7.40	6.05	5.26	4.26	3.57	1.96
1.80V/cell	92.5	68.2	53.9	46.0	35.9	26.5	21.6	12.5	9.71	7.86	6.46	5.62	4.51	3.68	1.98
1.75V/cell	102.0	73.8	58.1	49.0	36.9	27.2	22.5	12.9	9.85	8.00	6.61	5.76	4.58	3.77	2.00
1.70V/cell	109.3	78.6	61.2	51.1	38.2	28.2	23.1	13.2	10.1	8.20	6.77	5.87	4.64	3.84	2.03
1.65V/cell	118.8	84.0	64.6	53.9	40.0	28.6	23.5	13.3	10.5	8.45	6.93	5.98	4.70	3.91	2.05
1.60V/cell	128.0	89.1	67.9	56.8	41.9	29.7	23.6	13.9	10.8	8.69	7.13	6.09	4.73	3.95	2.06

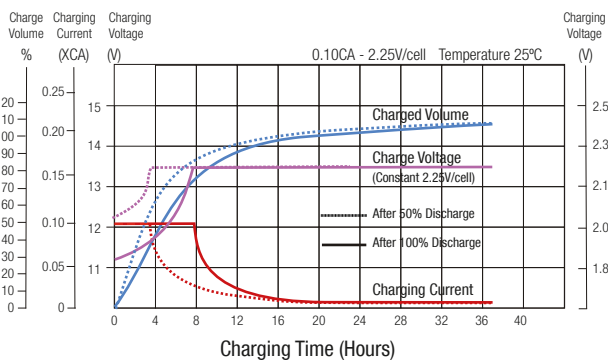
Discharge Characteristics



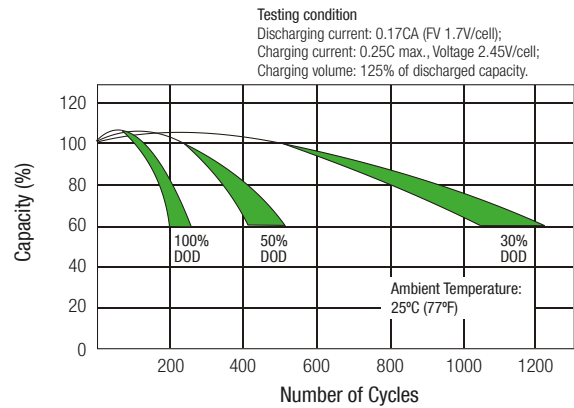
Effect of Temperature on Long Term Float Life



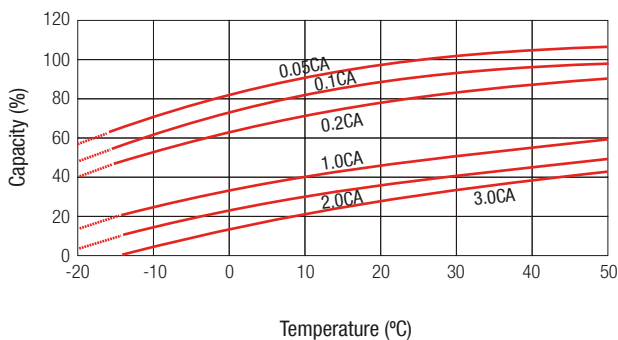
Float Charging Characteristics



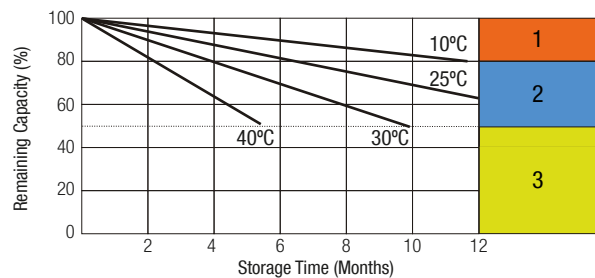
Cycle Life in Relation to Depth of Discharge



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.