

PM9-12 12V9AH

PM SERIES-VRLA BATTERY



Specification

Nominal Voltage	12V	
Nominal Capacity(20HR)	9.0AH	
Dimension	Length	151 ± 1mm (5.95 inches)
	Width	65 ± 1mm (2.56 inches)
	Container Height	94.5 ± 1mm (3.72 inches)
	Total Height (with Terminal)	100 ± 1mm (3.94 inches)
Approx Weight	Approx 2.5 kg	
Terminal	T1 / T2	
Container Material	ABS	
Rated Capacity	9.00 AH/0.450A	(20hr, 1.80V/cell, 25°C/77°F)
	8.37 AH/0.837A	(10hr, 1.80V/cell, 25°C/77°F)
	7.64 AH/1.528A	(5hr, 1.75V/cell, 25°C/77°F)
	6.88 AH/2.29A	(3hr, 1.75V/cell, 25°C/77°F)
	5.65 AH/5.65A	(1hr, 1.60V/cell, 25°C/77°F)
Max. Discharge Current	134A (5s)	
Internal Resistance	Approx 19mΩ	
Operating Temp. Range	Discharge	-15 ~ 50°C (5 ~ 122°F)
	Charge	0 ~ 40°C (32 ~ 104°F)
	Storage	-15 ~ 40°C (5 ~ 104°F)
Nominal Operating Temp. Range	25 ± 3°C (77 ± 5°F)	
Cycle Use	Initial Charging Current less than 2.7A. Voltage 14.4V~15.0V at 25°C(77°F)Temp. Coefficient -30mV/°C	
Standby Use	No limit on Initial Charging Current Voltage 13.5V~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	PALMA PM series batteries may be stored for up to 6 months at 25°C(77°F) and then a freshening charge is required. For higher temperatures the time interval will be shorter.	

Applications

- ◆ All purpose
- ◆ Uninterruptable Power Supply (UPS)
- ◆ Electric Power System (EPS)
- ◆ Emergency backup power supply
- ◆ Emergency light
- ◆ Railway signal
- ◆ Aircraft signal
- ◆ Alarm and security system
- ◆ Electronic apparatus and equipment
- ◆ Communication power supply
- ◆ DC power supply
- ◆ Auto controlsystem

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	16.2	12.4	10.3	8.90	6.88	5.07	4.27	2.53	1.98	1.61	1.31	1.14	0.918	0.767	0.421
1.80V/cell	21.7	15.9	12.4	10.5	8.12	5.90	4.79	2.76	2.13	1.72	1.41	1.22	0.973	0.791	0.425
1.75V/cell	24.5	17.5	13.6	11.3	8.43	6.12	5.01	2.86	2.17	1.76	1.45	1.25	0.990	0.812	0.429
1.70V/cell	27.0	19.0	14.5	11.9	8.78	6.36	5.17	2.93	2.23	1.80	1.48	1.28	1.004	0.828	0.437
1.65V/cell	29.7	20.5	15.4	12.6	9.26	6.52	5.29	2.98	2.32	1.86	1.52	1.31	1.020	0.845	0.443
1.60V/cell	32.8	22.3	16.5	13.5	9.78	6.80	5.34	3.10	2.39	1.92	1.57	1.34	1.030	0.854	0.445

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	29.6	23.0	19.2	16.8	13.1	9.75	8.25	4.91	3.86	3.14	2.57	2.24	1.81	1.52	0.834
1.80V/cell	39.3	29.0	22.9	19.5	15.2	11.2	9.19	5.32	4.13	3.34	2.75	2.39	1.92	1.56	0.841
1.75V/cell	43.4	31.3	24.7	20.8	15.7	11.6	9.57	5.50	4.18	3.40	2.81	2.45	1.94	1.60	0.848
1.70V/cell	46.4	33.4	26.0	21.7	16.2	12.0	9.84	5.62	4.29	3.49	2.88	2.49	1.97	1.63	0.863
1.65V/cell	50.5	35.7	27.4	22.9	17.0	12.2	9.99	5.67	4.46	3.59	2.95	2.54	2.00	1.66	0.873
1.60V/cell	54.4	37.9	28.9	24.1	17.8	12.6	10.0	5.89	4.57	3.69	3.03	2.59	2.01	1.68	0.877

Note The above data are average values, and can be obtained with 3 charge/discharge cycles. These are not minimum values.

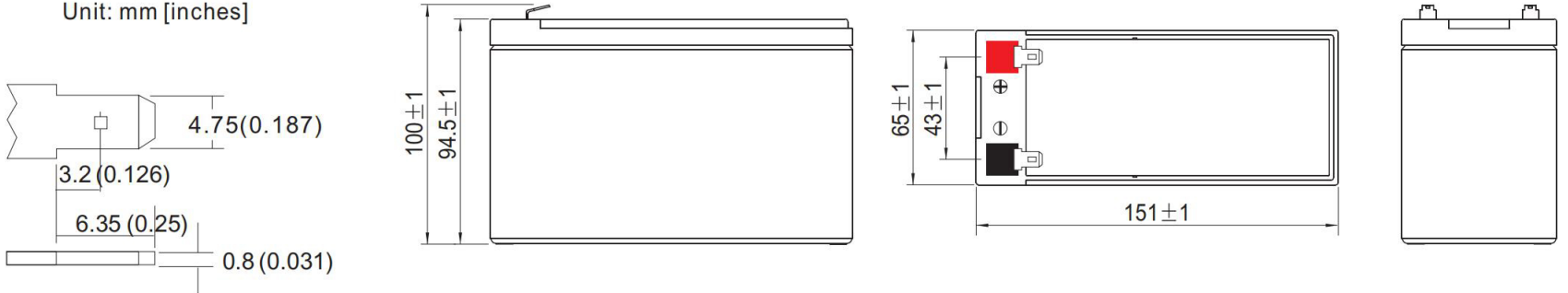
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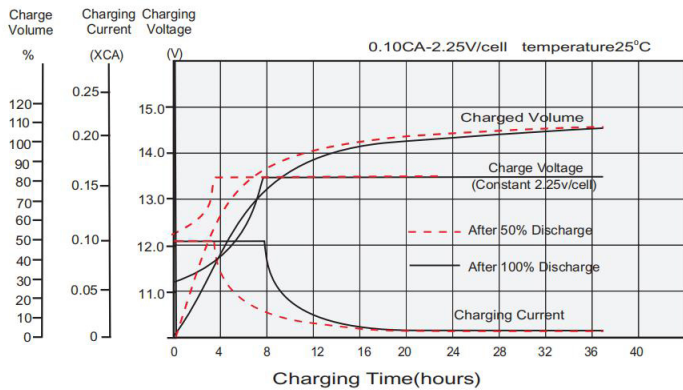
Dimensions

T1 Terminal

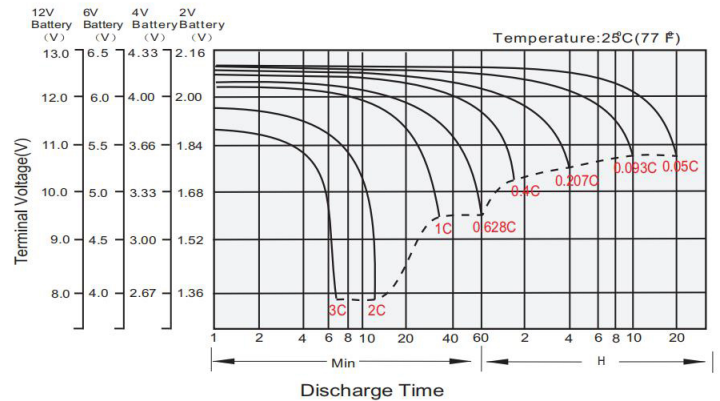
Unit: mm [inches]



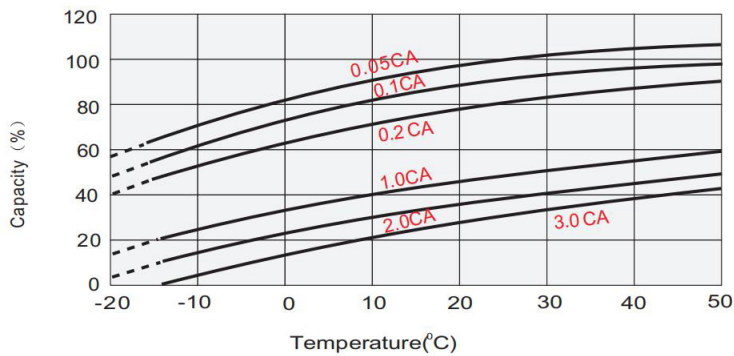
Float Charging Characteristics



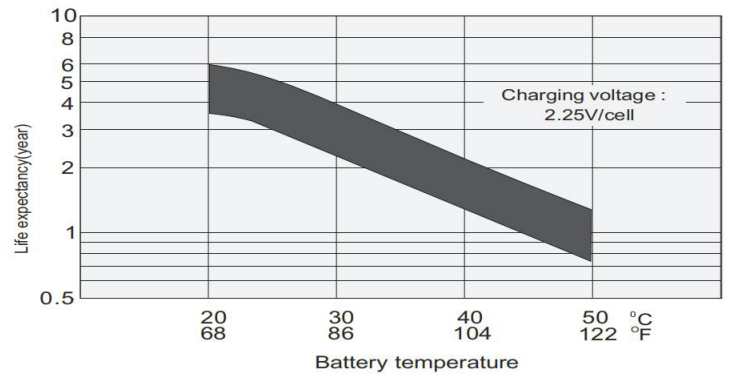
Discharge Characteristics



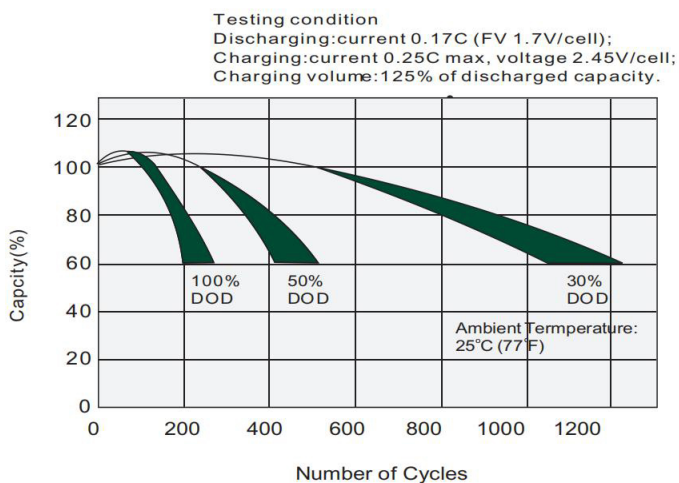
Temperature Effects in Relation to Battery Capacity



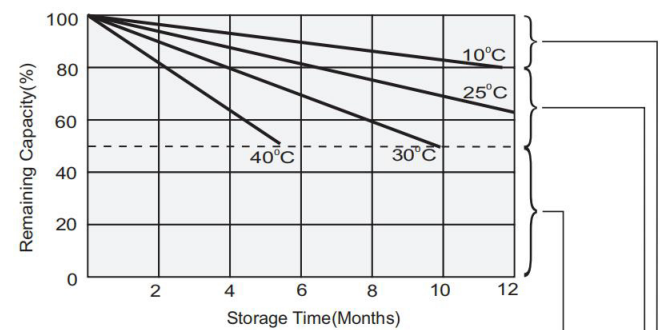
Effect of Temperature on Long Term Float Life



Cycle Life in Relation to Depth of Discharge



Self Discharge Characteristics



Supplemental charge may often fail to recover the capacity. The battery should never be left standing till this is reached.

Supplemental charge required before use. Optimal 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.

No supplementary charge required
(Carry out supplementary charge before use if 100% capacity is required.)