

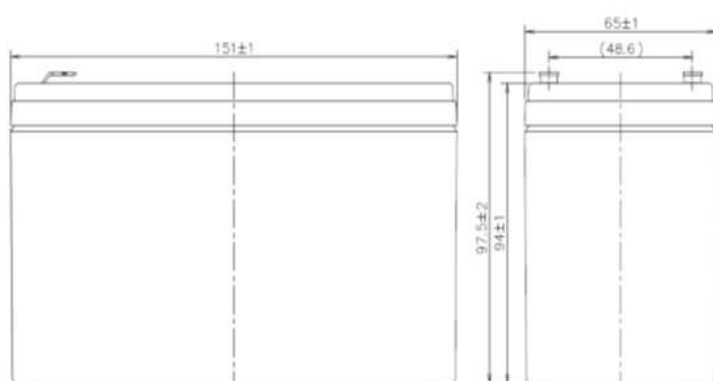
	Model.	NP7-12V		
	Initial Date	2020.08.01	Authorized.	Author.
	Revision Date.			

BATTERY SPECIFICATIONS

Valve Regulated Lead Acid (VRLA) Rechargeable Battery

1. Model : NP7-12
2. Nominal Voltage / Capacity : 12V / 7AH (20HR)
3. Mechanical Spec :

Measurements	Length	151±1mm
	Width	65±1mm
	Case height	94±1mm
	Overall height	97.5±2mm
Terminal	Faston tab 187 / 250	
Weight	About 2.1Kg	
ABS Flame class	<u>NP7-12</u>	Flame class UL94HB



4. Construction :

This battery is composed of positive plates, negative plates, separators, container, lid, electrolyte etc., and is equipped with positive and negative polarity terminals.
Any emitted gas from the battery is minimized with the negative plate gas recombinant method, thus requiring no topping up of electrolyte.

5. External appearance :

Battery shall be without acid leakage, conspicuous stain, scar or deformation.

6. Performance :

6-1 Temperature of tested battery shall be $25\pm 2^{\circ}\text{C}$, if not specified.

6-2 Discharge capacity : (This value is the minimum)

PERFORMANCE DATA AT $25^{\circ}\text{C}(77^{\circ}\text{F})$ - Amperes and Watts

F.V.	TIME	3M	5M	6M	8M	10M	15M	30M	1H	2H	3H	4H	5H	10H	20H
		9.60V	W	425	330	297	250	216	162	97	55.7	31.4	22.4	17.6	14.5
	A	40	30	27.0	22.7	19.3	14.0	8.3	4.68	2.62	1.87	1.46	1.20	0.69	0.37
9.90V	W	416	323	291	245	212	159	96	55.2	31.1	22.2	17.4	14.4	7.75	4.28
	A	38	29	25.9	21.8	18.5	13.7	8.1	4.64	2.59	1.85	1.45	1.19	0.69	0.37
10.20V	W	402	316	286	241	209	158	95	54.6	30.7	21.9	17.2	14.2	7.67	4.24
	A	37	28	25.4	21.4	18.3	13.5	8.0	4.59	2.57	1.83	1.43	1.18	0.68	0.37
10.50V	W	378	302	277	233	204	155	93	53.8	30.5	21.7	17.1	14.1	7.63	4.22
	A	34	27	24.5	20.6	17.8	13.3	7.9	4.53	2.54	1.81	1.42	1.17	0.68	0.37
10.80V	W	344	282	260	219	194	149	90	52.5	30.0	21.4	16.9	14.0	7.57	4.20
	A	30	24	22.9	19.3	16.9	12.8	7.7	4.42	2.50	1.79	1.41	1.16	0.67	0.36

The battery capacity at the time of delivery, within 1 day after being charged at 14.4V (MAX:1.75A) for 16hr.

Charge period may need to be extended, as it is dependent on the state of the charge of the battery.

6-3 Open circuit voltage :

Open circuit voltage will be around 13 V at fully charged condition.
It is dependent on the state of the charge of the battery.

6-4 Internal resistance :

Give a full charge to the battery, and measure with AC bridge (1KHz), about 22.0mΩ.

6-5 Maximum continuous discharge current :

No deterioration shall be found with 105A discharge for 5 seconds.

6-6 Charging :

Method	Given Voltage	Maximum charging Current	Special condition(S)
Float Charging	13.65V±0.15V	1.75 (A)	As the average ambient temperature rises, charging voltage should be reduced to prevent overcharge. Accordingly, the recommended compensation factor is - 3mV/°C/cell at 25°C of standard centre point.
Cyclic Charging	14.4V~15.0V	1.75 (A)	As the average ambient temperature rises, charging voltage should be reduced to prevent overcharge. Accordingly, the recommended compensation factor is - 4mV/°C/cell at 25°C of standard centre point. Caution : This needs to be terminated with appropriate charging period in order to avoid excess over charging that can result in the damage of the batteries.

6-7 Permissible temperature range :

Conditions	Temperature range
Discharging	-15°C ~ 45°C
Charging	-15°C ~ 45°C
Storage	-15°C ~ 45°C

6-8 Storage period without charge :

Storage temperature	Max. storage period
Temp. \leq 25°C	6 months
25 < Temp. \leq 30°C	4 months
30 < Temp. \leq 35°C	3 months
35 < Temp. \leq 40°C	2 months

6-9 Expected float use life :

Test condition :

Charge at 13.65±0.15V continuously and discharge at 1.75 (A) to FV 10.2V every 3 months.

Battery capacity maintains more than 2Hr during 3 years, at 25±2°C.

Expected life will become shorter accordingly with rise in the temperature.

6-10 Expected Cyclic life :

50% DOD test condition : (at 25±2°C)

Discharge at 1.75 (A) for 2 hours. Constant voltage charge at 14.4 ~ 14.7V / battery 【 Charge amount (AH) = 105 ~ 110% of discharge amount (AH) 】 .

Expected cycle life about 400 cycle (Final discharge voltage over 10.2V) .

Expected life will become shorter accordingly with rise in the temperature.

6-11 Mechanical strength :

6-11-1 Anti-vibration performance :

Vibrate the battery in any directions for 60 consecutive minutes with 4 mm amplitude and 16.7 Hz per minute. Read the voltage and make visual inspection. Battery shall show no extreme damage or no electrolyte leakage and should read nominal 12V or more.

6-11-2 Anti-impact performance :

Drop it from a 20cm height onto a 10mm thick solid wooden block in any directions except terminal portions. Read the voltage and make visual inspection. Battery shall show no extreme damage or no electrolyte leakage and should read nominal 12V or more.

7. Installation Conditions :

Storage container for rechargeable battery must not be of sealed and air tight construction; the container must be equipped with appropriate ventilation system · such as ventilation holes leading to the outside and so on.

The following applies to using a rechargeable battery inside a metallic storage box: to prevent the rechargeable battery from leaking fluid due to a breakage in the electrolytic cell, thus forming a leak circuit between the battery and the storage box (or fixed frame), install between these two items a heat and acid resistant insulating sheet (or tray) that will not be damaged by periodic stress. Alternatively, place the rechargeable battery inside an insulating bag but not to be sealed.

For the above described insulation material, do not use any material that can be stained with grease, or that can have organic substance oozing out of itself.

Do not allow the rechargeable battery to come into contact with vinyl tape containing plasticizer, insulation sheet, solvent, or grease.

8. Caution :

Use different kinds, capacity, new and old production of battery to series connection, or parallel connection more than three groups, or cycle use, please avoid.