

VRLA/GEL BATTERY

- 4.4 The lowest final voltage of battery at different discharging current.
When the battery is discharging, the lowest final voltages must be controlled according to the shown in table 1-3, otherwise it will cause great damage battery life.

Table 1-3.

Discharging Current	Final Voltage (V)		
	2V Series	6V Series	12V Series
<0.1C	1.80	5.25	10.50
0.1C~0.3C	1.75	5.25	10.50
0.3C~0.5C	1.70	5.10	10.20
0.5C~1C	1.65	4.95	9.90
>1C	1.6	4.80	9.60

Warning

- 5.1 Please don't overhaul, decompose or remould by yourself, otherwise the acid or lead metal in the battery will cause harm to people or the environment.
- 5.2 Prohibit making short-circuit of positive and negative of batteries or battery groups, otherwise it will cause electric shocking, fire and other accidents.
- 5.3 When connecting or leading battery groups, please choose the wires with appropriate line diameter, otherwise it will cause fire and damage.
- 5.4 Please firmly connect terminal sockets or bolts, if loose, it will cause the connecting voltage of batteries drops largely or sparking.
- 5.5 When connecting in the construction, it must be cut off the main power supply, otherwise it will appear risk of electric shocking.
- 5.6 Do not connect to other powers except designed voltage, otherwise it will cause fire and other damage.
- 5.7 Do not use batteries as AC power supply directly, otherwise it will cause fire or other damage.
- 5.8 When batteries are connected in parallel, three groups are at most and the suggested biggest current for each group is 0.1C.

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INSTRUCTION MANUAL

Please read the manual carefully
before operation

Power Can be stored safely

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The Inspection before battery installation

A routine inspecting of battery packages should be done first, check the quantities of the battery and related accessories is accurate or not.

- 1.1 Every battery carton will have one "Instruction Manual", a set of screw (12V 18Ah and above models);
- 1.2 Check the battery if it has splits, bulging, leakage or other un-normal phenomenon;
- 1.3 Battery Voltage Testing:

Nominal Voltage	2V	6V	12V
Measured Voltage	>2.1V	>6.3V	>12.4V

Note: Measured Voltage should be greater than the values in the table above.

Transporting and storage

- 2.1 When handling the batteries, should be erect, take care, refuses inverting, tumbling or throwing;
- 2.2 The battery is full capacity before leaving factory, during the transporting, should protect the terminals, not allowed to loose safety valves, refusing short circuit;
- 2.3 The battery should be stored under ambient temperature of 0°C~40°C before installation, the storage period is shown in table 1-1. Expiration or the battery voltage is lower than that is shown in table 1-3, should be recharging at once.
- 2.4 The battery should be stored in dry, clean and well ventilated place.
- 2.5 Do not store or use in the following situation:

- Outdoors or directly raining & sunshine place;
- Fog or icy pool place;
- Corrosive gas place;
- Heavy moisture or more dust place;
- Vibration or shock occurs place.

Table 1-1. Storage Period under different temperatures

Temperature(°C)	Period(months)
0 ~ 15	9
16 ~ 25	6
26 ~ 35	3
36 ~ 40	1

Battery Connection

- 3.1 Series connection: the batteries (or battery groups) which have the same actual capacity is allowed to be used by series connection.

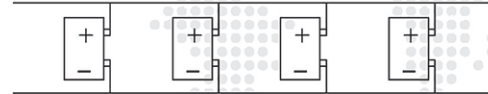


- 3.1.1 the batteries which have different capacities is not allowed to be used by series connection;
- 3.1.2 the new battery is not allowed to be used with old battery by series connection;
- 3.1.3 the batteries which are offered by different suppliers are not allowed to be used by series connection;
- 3.1.4 The batteries which are the same model and different remain capacities are not allowed to be used by series connection; they can be used by series connection after recharging to full capacity for these different remain capacities batteries;



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- 3.1.5 The newly installed battery groups must be floating recharged for 72 hours before using, they can be used or tested after the internal power balanced. This method is very important for battery groups' working life and voltage consistency.
- 3.2 Parallel connection: the batteries (battery groups) which are the same voltage and capacity can be used by parallel connection. (We advice that the maximum of parallel group number is less than 4.)



Charging & Discharging Methods

- 4.1 Classification of charging ways

- Float charging and uniform charging (supplement charging).
Float charging means that when the battery is in full state, the charger will not stop charging, and continue to supply a constant floating voltage and a small floating current for the battery.
- Uniform charging means that charging the battery quickly according to the charging current and charging time which have been already designed.

- 4.2 Charging parameter (Table 1-2)

Parameter	Battery Series	Charging Ways	
		Float Charging	Uniform Charging
Charging Voltage (25°C)	2V Series	2.23~2.27V/PC	2.42~2.48 V/PC
	6V/12V Series	6.75~6.9 V/PC 13.5~13.8V/PC	7.25~7.45V/PC 14.5~14.9 V/PC
Charging Current	2V Series	Max. Current:0.3CA Suggested Current:0.10CA	Max. Current:0.3CA Suggested Current:0.10CA
	6V/12V Series		
Temperature compensation coefficient	2V Series	3 mV/°C	3 mV/°C
	6V/12V Series	9 mV/°C 18 mV/°C	9 mV/°C 18 mV/°C

(Note: In the table of "Charging Current", the "C" means battery nominal capacity; The temperature compensation coefficient takes 25°C as the base, when temperature is increased by 1°C, designed charging voltage is that nominal voltage subtracts one coefficient; Conversely, when temperature is reduced by 1°C, designed charging voltage will be that nominal voltage adds on one coefficient.)

- 4.3 Suitable situation for uniform charging.

- The batteries will be uniformly charged before using, when current is less than 10mA/Ah, it is automatically transferred to floating, floating time is not less than 24hours.
- When the voltage of individual battery is lower in battery group, should be uniformly charged.
- When charging current is more than 50mA/Ah after accidental discharging or regular testing of capacities, should be uniformly charging.