

Practical advice on lead-acid batteries

1. **ALWAYS** choose the battery suitable for the application (choose from the available ranges) and setting the model depending on use.
 - Better battery life over time.
 - Any problems are covered by the guarantee.On the contrary, wrong choices are NOT covered by the warranty and affect the battery life.
2. **ALWAYS** use the batteries in adequately ventilated places with temperatures compatible with the characteristics of the batteries (see data sheet).
3. **CONNECTION OF TWO BATTERIES IN SERIES**

You get a battery with the same capacity, but with double voltage.

⚠ With the connection in series:

 - DON'T use batteries of different brands or ages.
 - Check periodically (3-4 times a year) the OCV (Open Circuit Voltage) of the individual batteries. Any problems on a single battery can have an impact on the other batteries.
 - Perform the equalization.
 - Use cables with adequate section.
 - Alternate the position of the batteries 2-3 times a year.
4. **CONNECTION OF TWO BATTERIES IN PARALLEL**

You get a battery with the same voltage, but with double the capacity.

⚠ Use batteries in parallel can be dangerous, then, if necessary, interface with U.B.S.
5. Correctly size batteries according to their discharge current (see battery data sheets): current discharge beyond the limits indicated will immediately invalidate any warranty.
6. Carefully tight the poles screws, according to what follows:

> M5 terminal: 5,9/6,1 Nm > M8 terminal: 22,5/23,2 Nm

> M6 terminal: 11,9/12,1 Nm > M10 terminal: 24,5/27,0 Nm

Overheating of the poles due to incorrect tightening is not covered by the warranty.
7. AVOID any short circuit between the battery poles.
8. Use chargers with suitable charging curves (see battery data sheets). In AGM deep-cycle applications is recommended the IU1a charge cycle if more than two batteries are connected in series. In STAND-BY application the use of push-button hold charging cycles is recommended NEVER interrupt the refilling cycle. ALWAYS wait for the charging cycle to finish automatically. Incomplete recharges will avoid the warranty.
9. Periodically discharge the batteries (better once a month) completely (up to 80%).
10. ALWAYS recharge the batteries immediately after discharge.

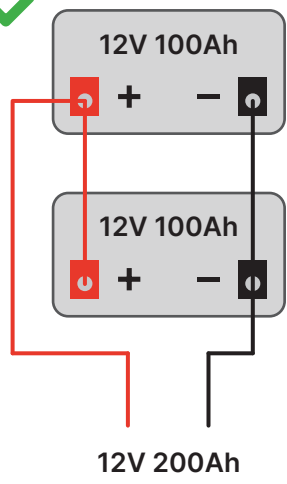
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11. For long periods of disuse, recharge the batteries periodically (at least once a month).
12. Deep-cycle batteries may only be used once per day, 220 cycles per year. Any other use, unless agreed in writing, will invalidate the warranty.
13. In ALL lead acid batteries (YUASA), the electrolyte level must be checked monthly. The plates must be always completely submerged. If necessary, add only distilled water after recharging. If the battery is equipped with an automatic topping up system, it is important to disassemble it and remove any deposits at least once a year. At the same time, check that the floats are working properly.
14. Prevent and remove eventual oxidation on the poles. It is recommended the use of rubber end covers.
15. In our website www.unionbatteryservice.it are available all the general warranty conditions

PARALLEL CONNECTION

Balanced plant

✓

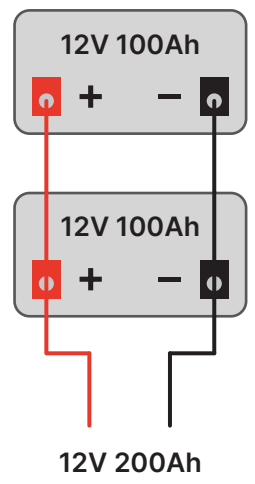


12V 200Ah

PARALLEL CONNECTION

Not balanced plant
High risk of damaging the batteries

✗

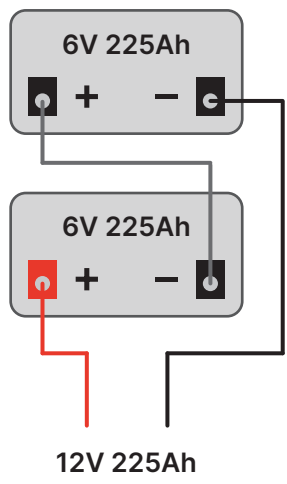


12V 200Ah

SERIES CONNECTION

Always recommendable when it is possible

✓



12V 225Ah

Refresh charges FOR BATTERIES AT STOCK		
Storage temperature	(ZL, ZGL, ZPC, ZLS, ZLM, ZGEL)	(YUASA)
Between 10°C and 20°C	Every 9 months	Every 3 months
Between 20°C and 30°C	Every 6 months	Every 2 months
Between 30°C and 40°C	Every 3 months	Every months