

How to do troubleshooting for SOK 12V 280Ah Bluetooth and heated Battery, model:SK12V280H

1. **why the voltage so low when I received the battery?** When you received the battery, the battery was set in storage mode, the battery voltage should be 0V~13V, you need to give it a charge, the battery would be reactive, once battery be reactive, the voltage should be back to normal, around 13V. Please note, your charger should be has DC 14V~15V output, if the battery charger is too low, under 14V, it probably cannot reactive the battery from storage mode, we would suggest you choose Victron Bluetooth smart charger or SOK 12V 20A charger.
2. **Why I cannot search the battery Bluetooth?** When you receive the battery, the battery in storage mode, the Bluetooth shut off, check the #1 to reactive the battery, the Bluetooth would be on, make sure choose the right app:ABC-BMS. Also, this Bluetooth has sleep mode function, if you don't use the battery for 6 hours, the Bluetooth would go to sleep mode, it doesn't mean your battery in sleep mode, only the Bluetooth in sleep mode, in this case, turn on your RV loads, or charger, let the battery start working, as long as the battery is working, the Bluetooth would on immediately. We design the Bluetooth sleep mode function because of saving power, for example if you storage the battery like 3 months or 5 months, if the Bluetooth on, it would drain the battery empty and got the battery over discharged, this may be damaged battery cells.
3. **What's the normal voltage range for SK12V280H model battery?** SOK 12V battery terminals voltage should be between 10v~14.6V, if it fully charged, the battery voltage should be over 13.5V, if close to empty, the voltage should be drop down around 12V. If your battery voltage over 14.6V, make sure check your charger system, set charger voltage at NOT over 14.6V
4. **How to check battery voltage?** Using a voltmeter, positive and negative to batteries terminals, BUT make sure remove all connections on batteries terminals or else, the voltmeter may measure the charger voltage.
5. **What should do if battery not take a charge or discharge?** There are few steps to check:
 - 1) Pull out the battery from this system, make sure NOT connect any wires on the battery terminals.
 - 2) Make sure your charger has DC 14v~15V output, using the voltmeter to connect charger positive and negative to check the charger.
 - 3) After checking the charger (and make sure it has correct DC output), connect the charger on batteries positive and negative, if not take a charge, should be battery issue.
 - 4) Open up the battery top lid cover and then using the voltmeter to check each battery cells voltage, if all battery cells voltage in normal range(2.5V~3.6v), it means the BMS failed. If any battery cell voltage under 2V, it means battery cells has issue. If battery cells failed, please contact SOK for replacement.
 - 5) If BMS failed, please contact SOK to get new replacement BMS, here is the video how to replace BMS:
<https://youtu.be/QChwjAJ7Iz0>
6. **How to storage battery?** For winter storage or long-time storage, we would suggest you charge up the batteries, charge up to 13.5V, and then turn off everything. No need pull out batteries and bring home. And suggest you charge them every 3 months.
7. **Why my different batteries SOC on the Bluetooth app are different?** If you connect few batteries in parallel and each battery has different SOC when you reading the Bluetooth APP, no need worry about this, check the voltage, if the voltage on the same level, it means batteries SOC are the same. You could completely charge and discharge these batteries during you using it, the SOC would be correct.

8. **How to do capacity testing for my battery?** All SOK battery using Grade A battery cells. For SK12V280H battery, we using at least 8000 cycles (base on 140A current charge/discharge) cells. It rated at 280Ah capacity , but when you receive it, it should be at around 300Ah real capacity. Here is an video how to do capacity testing:
<https://youtu.be/XRgNB5HqavA>
9. **How is the battery BMS balance function working?** SOK develop team design our own BMS and it has the best balance function, and it's much better than any other brand BMS. As long as you using this battery, it would slowly balance the battery cells, when the battery cells voltage difference in 20mV, it would stop balancing. So when you receive the battery, reactive it and just using it would be fine, no need do balance.
10. **Do need charge battery fully before installing?** Some customers read online that the battery should be fully charged before installation, but in fact, for SOK battery not necessary, reactive them and install them, and start using them would be fine.