

FAQ's - Frequently Asked Questions

1. Is it possible to just "connect & forget"?

1. Not even the Smartest Battery Charger in the World could rescue a worn out battery. An indication of that something is wrong is if the charger is still charging after 72 hours. Possible causes:

- The most obvious is that the battery is worn out and has to be replaced.
- A large battery of the older design with an Antimony alloys behaves different from a modern battery. One test is to just disconnect the power cord and then connect again. An Antimony battery will indicate that it is fully charged. Check the battery again some days later. Replace the battery if the charger has restarted within one day.
- Power consumer, like alarms, lamps, circulation pumps and electronics, prolongs the charging time and sometimes even disturbs it.

Always check that the automatic transition to maintenance. Disconnect the charger if the charger is still charging after three days. Disconnect and re-connect to check if the voltage is above the threshold for being fully charged.

2. When should I use the "Car mode" on a MULTI XS 3600?

2. 14 Ah is the recommended lower limit for that setting. This battery size is much lower than the established rule of thumb and there is a reason for that. The CTEK chargers have an extremely "clean", ripple-free current. The current ripple on the MULTI XS 3600 is just 0.13 A which could be compared with most linear chargers where the ripple could be a multiple of the nominal current! Ripple on such a level heats the battery more than it charges it. Compare that with the size of the alternator in a car. The alternator could be at 50A or more but it is relatively ripple-free and won't harm the battery. The Multi XS chargers are even better and could therefore be used for very small batteries, as well as for large ones.

3. Could I use a MULTI XS 3600 for a camper or a boat?

3. Yes, a MULTI XS 3600 works very well in a boat or a camper. Just note that it is a small charger and might not be powerful enough for your needs. Use the car mode and the charger produces ~3.6A until full voltage. The voltage is then locked and the current is dropping until about 0.5A = ~5W. There is however a catch with the MULTI XS 3600. A parallel load, like a lamp, could disturb this automatic transition, which means that the charger stays at 14.4V too long. That's no problem if it is just for a day or two, but it could harm the battery if it continues for a long period of time. Most chargers work like this. The method of handling this is either avoiding the parallel load or on a regular base disconnect the charger. One method of disconnecting is to use a 24-hour timer, which disconnect 15 minutes every 12 hour. This method eliminates the problem, but allow the battery to be fully charged before the timer is connected. Our bigger charger has this timer built-in.

4. Can the charger be permanently connected in a car?

4. The MULTI XS 3600 and 7000 are perfect inside the car, but not under the hood. The reason for this is that the power cable is not approved and has to be protected by a grounded metal hose.

5. The specification for the MULTI XS 3600 states battery size 1.2 –120Ah. What happens if I connect it to my boat with 2 x 65 Ah batteries in parallel?

5. 2x65 = 130 Ah is above the specification and we would recommend a larger charger. Large battery banks could fool the automatic transition, especially if it is of the older design with Antimony alloys. The charging time will also be long, which means that the battery will be at higher voltage during a longer period of time. Parallel-connected batteries are no problem for the charger but be certain that the cables between them are heavy enough. The current between the batteries could be high if one is discharged and the other is charged.

6. I use a MULTI XS 3600 in my boat. I checked the voltage during charging but the voltage was just 12.25V! I thought the battery needed over 14V for being properly charged? The temperature on the case is also about 50 degrees Celsius. Is that too warm?

6. Everything is in order. The voltage is at about 14.4V during the absorption phase, but you most likely measured the voltage during the bulk phase. The current is kept constant during this phase while the voltage is increasing. The voltage will be locked at the levels that you talk about during this phase, so that the charge will be 100% complete. The voltage is actually not exactly 14.4V during the absorption phase for the MULTI XS 3600. It starts to reduce the current already at 14.0V to further reduce the time at voltages close to gassing. This benefit will further reduce the water losses from the battery. Temperatures are according to international approval authorities recommendations. The charger is allowed to be 65 degrees C, which means that 50 degrees C is OK: The charger can't be overheated. Internal temperature protection will reduce the power if the temperature increases.

7. The yellow and green LED started to flicker when I connected the charger. Why?

7. This could be caused by several reasons:

- Bad connection. Check the connection wires, incl. the quick connectors.
- Sulphated battery. A very common reason, which is handled by the CTEK chargers with this unique feature. A sulphated battery has a layer of lead sulphate, which increases the internal resistance. This layer is not fully insulating, but the battery behaves in a very special way. Voltage will increase rapidly, up to chargers limit. Most chargers stop there and the normal diagnosis is that the battery "doesn't accept charge". The MULTI XS 3600 instead starts to charge with pulses at 14.4V and 3.6A. These pulses can "break" the sulphate layer and sometimes a normal charge cycle will start after a while. If the flickering continues for more than an hour: replace the battery. Don't expect that a battery that has been wakened" like this will last forever. It might be at the end of its life, but the replacement can be planned instead of being urgent. Some batteries however can be completely recovered.
- Cell failure A charging that starts in a normal way and then gets this flickering can be harmed by a lost connection or internal problems. Disconnecting and reconnecting can establish this fact. The charge cycle won't start if there is an internal problem.

8. I have an AGM-battery. Should I use the snowflake mode?

8. It depends. Optima and Hawker recommend the snowflake mode. If uncertain, use the car mode.

9. Do I have to disconnect the battery from the car or the boat when I charge?

9. No, you don't have to disconnect the battery when using any CTEK product. The voltage is extremely well controlled and very ripple-free or "clean". Most car electronics are safe under 16V. The MULTI XS 3600 maximum voltage is 14.7V + ½ of the ripple (50 mV), which means a voltage well under 14.8V. Please note that higher voltage will reduce life of some components such as light bulbs. One rule of thumb says that an increased voltage of 5% reduces a light bulb's life by 50%, but that is normally no problem. If you use some extremely sensitive electronics where the manufacturer has a warning against voltages above 14.8V: disconnect!

10. Could I start charging a totally flat battery?

10. MultiXS3600 can charge a battery which is down to just 1.5V. A battery that has been discharged to such a low level has most likely being harmed. Check that the charger is in the maintenance mode after 48 h (60 Ah battery). The battery is most likely damaged if it is still charging after 48 h and should be replaced.

11. I have a motorcycle with a 12V AGM battery @ 12Ah. Should I use the "snowflake" setting? There is no low-current setting with a higher voltage.

11. An AGM-battery usually prefers slightly higher voltage but check with the battery manufacturer first. An AGM is also called "starved" due to the design with a limited amount of acid. Many battery manufacturers compensate the low amount of acid by increasing the specific gravity of the acid. This means that the battery prefers slightly higher voltage, but the battery manufacturer has the final call regarding voltages. If you don't know: use the lower voltage. A 12 Ah battery should use the low current mode anyhow, because we recommend the higher setting from 14 Ah.

12. I have a motorcycle with a 12V 12Ah battery. The battery indicates very quickly that the battery is fully charged, but it doesn't work in my motorcycle. What's the problem, charger or battery?

12. The behaviour of the charger could be explained in two different ways, from the batteries point of view:**a.** A battery that has lost water could behave like that. A quick voltage increase but no capacity left, which means that the battery could behave like a 4 Ah battery. The battery has to be replaced. **b.** A sulphated battery could also behave this way because the sulphate layer is current restricting, but the voltage could go up to full voltage. This battery is also at the end of its life. The CTEK chargers tries to "awake" this battery with pulses, but only "sleeping" batteries can be awakened. A dead battery has to be replaced. Both these failures modes could have been avoided with a MULTI XS 3600 during the off-season.

13. Isn't a 3.6A charger too small for a car battery?

13. One Ampere isn't always the same. A CTEK charger works with an almost constant current from totally drained up to full voltage. A normal linear charger with a heavy transformer starts with a high current but it drops very fast. Chargers with an ammeter indicate with a vibrating needle initially, but it drops within minutes. We show average current while the competition shows peak values. It is like comparing specialist 100 metre and marathon runners. Charging time is what is interesting and the MULTI XS 3600 could be compared with a linear charger at 10-11A if it is charging a totally drained battery, but the MULTI XS 3600 outperforms those chargers if the battery is half charged. The MULTI XS 3600 also charges 100%. Many other designs stops at full voltage, but a battery is then only 80% charged. The MULTI XS 3600 feeds the battery with the last 20% too!

14. Can I charge four batteries at the same time?

14. The charger has no problem at all to give enough charge for four different batteries at the same time. The problem lies with the batteries and the cables. First batteries: A battery doesn't last forever, even if it is properly charged. Parallel connection of several batteries means a risk that a battery that is failing because of age or abuse, can harm the neighbouring batteries. It isn't common that they fail during maintenance charging but the consequences can be that more than one battery will fail. That is one reason why it is wise to reduce the number of parallel-connected batteries. Cables: They can also cause a problem. A fully charged and a drained battery connected together will mean high currents between them. Fully charging them first will reduce these currents.

The charger will have no problems what so ever. All these issues are outside the control of the charger and it cannot be harmed.

One possible set-up:

- Fully charge all batteries.
- Connect them in pairs with heavy cables (4 mm2 or more).
- Charge one pair at a time and move the charger once a month. Even better is to use two chargers.
- A 24 hours timer could be beneficial if the MULTI XS 3600 is used. This timer is built-in on the larger chargers.

Another option is to use several quick connectors and not connect the batteries in parallel at all. Move the charger every second week and most problems are eliminated.

15. A MULTI XS 3600 should "remember" the mode if the power cord is disconnected. That didn't work for my camper.

15. This function doesn't work if the battery voltage is below 6V. Check that everything is working if you have an extremely deep discharged battery. A battery that is discharged to this level can also be permanently damaged.

16. Can I charge an Optima battery with such a small charger?

16. Yes, the MULTI XS 3600 handle most battery problems for a normal private person. The tiny less than 500-gram unit could charge a car battery over night or maintain a boat battery during the full off-season. Charging of Optima are perfect illustrations of this flexibility. These high-performance batteries have sometimes a reputation of being difficult to charge. The reason is their extremely low internal resistance. This low resistance is one key factor to their high performance, but the flip side of this is that they demand very high currents from normal chargers during charging. The MULTI XS 3600 gives these batteries all the current they require, without being overloaded. The higher voltage is another benefit when charging Optima or Maxxima. To summarise: Optima and Maxxima are easy to charge, when you have a MULTI XS 3600!