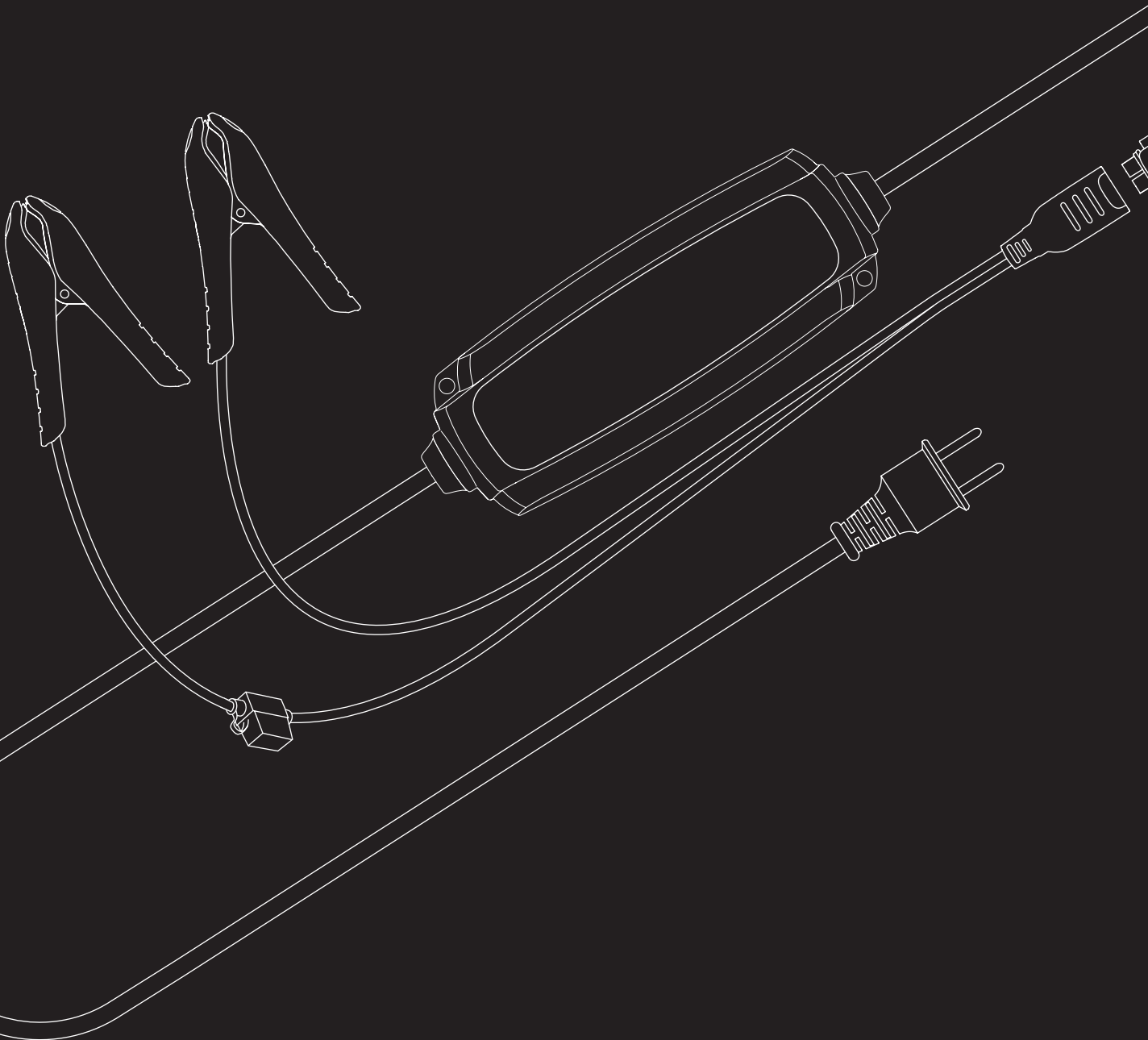


# CTEK

## ***BATTERY CHARGER FAQ'S***

*CT5 TIME TO GO*

Part No: 40-225



## **Why is the charger called TIME TO GO?**

Because it shows how much 'time to go' before charging is complete.

## **What does "GO" mean?**

This means that the battery is over 80% charged and the vehicle can be started. We recommend that you complete charging at the first possible opportunity.

## **What does the "TRY" mean?**

When the "TRY" LED is lit, it means that you can try to start the vehicle ONCE if you're in a hurry. At that point the battery is charged to about 30–40% capacity, and it should be charged fully at the first possible opportunity.

## **What does "CARE" mean?**

This means that the battery is now fully charged, and that the charger has switched to maintenance mode.

## **How do I know the battery is fully charged?**

When the green "CARE" light shows, the battery is fully charged.

## **If I choose RECOND, how do I know when it's finished?**

Reconditioning is activated by pressing the Mode button and selecting "RECOND". When the charger is in "CARE" mode it also means that the reconditioning is complete.

## **How does TIME TO GO estimate remaining time?**

TIME TO GO estimates the remaining charging time by analysing the battery voltage and its capacity to accept charge.

## **Why is TIME TO GO recommended for 20 Ah and upwards?**

The estimation of time remaining is less accurate with lower-capacity batteries.

### **How should I connect TIME TO GO?**

Batteries installed in vehicles should in the first instance be connected according to the vehicle's user manual. If the manual is not available, connect the positive clamp (or eyelet) to the battery's positive pole (or emergency start point), and the negative clamp (or eyelet) to the chassis (or suitable body earth or ground). With a free-standing battery, connect the positive clamp to the positive pole and the negative clamp to the negative pole.

### **TIME TO GO doesn't have a "snowflake setting". Can I use it during the winter?**

Yes – it has a temperature sensor that regulates the output voltage according to the ambient temperature.

### **Can I use the charger on my boat batteries?**

Yes, you can, if you have 12 V lead-acid batteries. Note that TIME TO GO is optimized for batteries from 20 to 90 Ah (up to 160 Ah for long term maintenance).

### **How many amps does TIME TO GO provide?**

It provides a maximum of 4.3 A and varies according to the needs of the battery.

### **I have a ride-on lawnmower. Can I use TIME TO GO to charge it?**

Yes, you can, if you have a 12 V lead-acid battery. Note that TIME TO GO is optimized for batteries of 20 Ah upwards, so if your battery has a lower capacity than 20 Ah you should use a different charger, such as an MXS 5.0

## **What is the difference between TIME TO GO and an MXS 5.0 charger?**

TIME TO GO has a different display. Instead of the various charging steps, you see a display that counts down the time left until the battery can be used.

## **Can I use my CTEK charger with a start/stop vehicle?**

Yes. CTEK chargers are safe to use on start/stop vehicles.

## **Do I have a charger or a maintainer (trickle)?**

The CTEK unit is both charger and a maintainer.

The maintenance mode will apply automatically after the battery is fully charged.

## **What accessories do I need to start charging?**

The accessories required to start charging are supplied with the charger. There are a wide range of consumer accessories on the web site to enhance your charging experience.

## **How should I connect my charger to the battery/vehicle?**

The charger should be connected according to the vehicle user manual. If there are no other recommendations available, connecting the red connector to the positive battery terminal first and the black connector to the vehicle chassis is common practise for safety reasons.

## **How will I know that my battery is fully charged?**

If the charger goes into CARE mode (a green LED will indicating this step will be lit up), the battery is fully charged.

## **How long does charging take?**

It can depend on many factors, for example, the battery size, battery health and state of charge. There is a table located in the user manual with an estimated number of hours to charge up a battery to 80%.

## **Is it dangerous to interrupt the charging process before my charger has finished?**

No. It is perfectly safe to interrupt the charge process. It is important to let the charger continue the charging cycle when possible, to fully charge the battery.

## **Can I use my charger with a vehicle that has an engine pre-heater?**

Yes. It is safe to use the charger with vehicles that use an engine pre-heater without damage to the vehicle, battery or charger.

## **The charger has switched to error mode. What could the problem be?**

1. First check that the charger is connected correctly. Check that the positive clamp (or eyelet) is connected to the battery's positive pole (or the positive charger terminal) and the negative clamp (or eyelet) is connected to the chassis (or the negative charger terminal), and not the other way round.
2. To exclude the possibility of a problem with the charger, test it on another battery.
3. The charger may have discovered a problem inside the battery. The charger will try repeatedly to continue, but if it cannot, it will switch over to error mode.

Depending on where in the program the charger has stopped, it is possible to identify a number of causes. If the Check light and Error indicator (!) are both lit at the same time, try restarting the charging cycle by unplugging the charger from the outlet and plugging it in again. If it stops again at the same point, the battery is sulphated and probably needs to be replaced. There can be other problems with the battery that mean that the charger can't go beyond Check mode.

If the charger enters error mode when ""Charge"" is lit, it is due to a problem with the battery's ability to retain charge. This can also happen if the loads on the battery are too great, making the voltage decrease too quickly. Disconnect these loads and try again.

## **The error lamp is lit! Is the charger faulty?**

Check the user manual for details on light patterns. This could indicate a problem with the battery. CTEK recommend getting the battery tested - it

may need replacing. Try to charge another battery where possible to exclude charger fault.

### **Nothing happens when I connect my charger to a mains socket, is the charger faulty?**

Connect the charger to a different mains socket. If the problem persists, please contact the dealer, the charger may need replacing.

### **The charger will not turn on, only the green power lamp is flashing. Is the charger faulty?**

Flashing power lamp is an indication that the charger has not established- or has lost- the connection with the battery. CTEK chargers need counter voltage to establish connection and start/or continue charging.

1. If the connection fails between the charger and the battery, the charging does not start.
2. If the battery is totally flat (under 2V) the battery is not recognized, and charging will not start.

If one of the options above occur, the charger shows this by turning to 'Power Safe Mode' and the power lamp starts flashing green.

### **Can I charge while the battery is being used?**

Yes. But simultaneous consumption or parallel load will prolong charging time.

(The consumption cannot exceed the output of the charger e.g., for CT5 TIME TO GO the load cannot exceed 4.3A)

### **Can I start my vehicle whilst the charger is connected?**

Yes. Remember to disconnect the charger from the vehicle before moving away.

### **Can I charge while I use a motor heater?**

Yes, you can.

### **Can I leave the charger connected to the battery for a long time?**

Yes. CTEK chargers are designed to fully charge a battery and then automatically switch over to long term maintenance. Before leaving the charger unattended for a long time ensure that the battery is fully charged as indicated by the green LED.

### **Can I charge my vehicle through the 12V (cig) socket?**

Yes, if your socket is still live when the ignition is turned off. Check the vehicle user manual contact your vehicle retailer or test it with any other cig-plug device that works with your vehicle. The maximum amperage charger that can be used is 10A.

### **Can I use a smaller or bigger charger than recommended for my battery?**

Choose charger depending on the size of your battery. Charging with a smaller charger than recommended will take longer time and will not optimally extend the battery life and performance. If your battery has an Ah rating that exceeds that of the charger limit it could mean that the charger will be unable to charge the battery sufficiently and may even lead to it becoming discharged. Charging with a bigger charger than recommended could possibly have an adverse effect on the battery performance and battery service life.

### **Can you connect a CTEK charger directly to the battery or does the negative connection need to go to the vehicle chassis?**

When using a CTEK charger, you can use both connections. The charger should be connected according to the vehicle user manual. If there are no other recommendations in the vehicle manual, the negative or black connector should be safely connected to the chassis.

If your vehicle has a Battery Management System you cannot connect to the negative battery pole, the connection must be made to the earth or ground point. If you are in any doubt, then connect to the nearest earth or ground point. Eyelets must be connected to the battery in the same way Red to positive terminal Black to earth or ground point on the chassis.

If the battery is disconnected or removed from the vehicle the connections can then be made directly to the battery terminals.

**The CTEK manual says: "Connect the black clamp to the vehicle chassis remote from the fuel pipe and the battery". In the picture next to this the black clamp is connected to the battery's negative pole. Which is correct?**

The charger should be connected according to the vehicle user manual. If there are no other recommendations in the manual the negative or black connector should be safely connected to the chassis. If your vehicle has the start stop technology, it will be fitted with a BMS (battery management system) you cannot connect directly to the negative battery pole the connection must be made to the earth or ground point. If the battery is disconnected or removed from the vehicle, then both connections can be made directly to the battery terminal.

**Can I charge the battery without removing it from the vehicle or opening the caps?**

There is no reason to disconnect or remove the battery from the vehicle – or open the battery caps – while charging with CTEK. CTEK chargers are spark proof, reverse polarity protected and electronically safe.

**How should I connect the charger? My car has BMS (Battery Management System)**

Connect the red clamp (or eyelet) to the battery's positive (+) pole. You can connect the black negative (-) clamp (or eyelet) to the chassis or a recommended earthing point.

**I can't guarantee that I will be at home when the charger says it's finished. Should I disconnect it and continue charging when I come home?**

No, you don't have to monitor the charger. It will automatically switch to maintenance mode and keep the battery fully charged until you return. If you want to leave the battery in maintenance mode long term, you should make sure that the charger has successfully charged the battery and that the "Care" light is showing.



### **Can I use the charger for long term maintenance?**

Yes, you can. The charger switches automatically to maintenance charging when the battery is fully charged.

### **No LED or display is lit when the charger is connected only to the battery.**

The plug has to be connected to the mains output for the LED & and the displays to be lit.

### **No LED or display is lit when the charger is connected only to the power outlet.**

The displays and LED should light up when the charger is connected to the power outlet.

Please test to make sure that there is power from the power outlet.

### **What is ripple and how does it affect batteries?**

Ripple is a measurement of the AC power leaking through to the DC side of the charger. High current ripple results in the heating up and drying out of a battery and in a shortened lifetime. High voltage ripple results in imprecise charging and can damage a vehicle electronics.

CTEK's chargers have a very 'pure' charge current and voltage, i.e., minimal ripple.

### **A CTEK charger is so small. How can it charge so quickly and efficiently, when compared with ordinary chargers?**

CTEK's chargers use the same type of technology that computers use to reduce dimensions, to increase power and to charge using a well-controlled and 'pure' current. Also, think how big mobile telephones were 15 years ago and how small they are today, and can even so do so much more.

### **How much electrical energy does it take to charge a lead-acid battery with a CTEK charger?**

Here is an easy way to calculate the electrical energy expenditure when charging a lead-acid battery with CTEK chargers.

**Given:**

Battery voltage = 12V

Battery size = 75Ah

The battery's charge level = 50%

The battery's efficiency level = 87%

CTEK charger's efficiency level = 80%

**Calculate:**

Energy consumed from the mains supply to fully charge the battery

First, how much energy is needed to fill the battery?

$$12V \times 75Ah \times 50\% = 12 \times 75 \times 0.5 = 450Wh$$

How much energy does the charger need to deliver based on the battery's efficiency level?

$$450Wh / 87\% = 450 / 0.87 = 517Wh$$

How much energy does the mains supply deliver to the charger when taking the efficiency level into consideration?

$$517Wh / 80\% = 517 / 0.8 = 647Wh \text{ or } 0.647kWh.$$

**Answer:**

0.647kWh is used to charge the battery based on the given data.

Assuming 1kWh price of \$0.14, it will cost \$0.09 to charge a half-charged 75Ah battery.

Vary the battery sizes and charging level to calculate other examples.

**What happens if I use the charger for batteries that are larger than you recommend?**

Charging with a smaller charger than recommended will take longer time and will not optimally extend the battery life and performance.

Charging with a bigger charger than recommended will not result in a completely charged battery and will not optimally extend the battery life and performance.

## **How deeply discharged can a battery be and still be recharged by a CTEK charger?**

Most CTEK 12V chargers can charge up batteries 2V. Our 6V charger can charge from 3V, and our 24V chargers manage batteries from 4V. Chargers equipped with the "Supply" mode need no counter voltage, and therefore can charge up batteries from 0V.

## **Can I charge GEL batteries with my CTEK charger?**

GEL batteries are a type of lead/acid battery where the acid is bound in a gel. These batteries can be charged with a CTEK charger.

## **Can a frozen battery be charged?**

No, the battery must be thawed first. Note that the battery was discharged first. Otherwise, it would not have frozen. Check the battery carefully for cracks or other damage. A fully charged battery freezes at -67 degrees Celsius, while a drained battery can freeze at just a few degrees below zero. If you think your battery is or was frozen, we recommend that you have the battery tested. It is likely to be damaged and may have to be replaced.

## **Can I maintenance charge several batteries at the same time?**

CTEK chargers are fully capable of charging or maintenance charging several batteries connected in parallel provided that the total size of the batteries (Ah) does not exceed the recommended size for the charger. Remember to completely charge each battery individually before connecting them. Otherwise, there is a risk of current surges between that batteries that can cause unnecessary wear.

## **What happens if I use the charger for batteries that are larger than you recommend?**

Using a small charger makes the charging time longer. Sometimes, this is critical. In such cases, you should use a larger charger. If you only use the charger for maintenance charging, a really small charger is often sufficient.

## **Does the battery have to be disconnected from the vehicle when it is being charged with a CTEK charger?**

No, CTEK chargers cannot damage sensitive electronics. So, you don't have to disconnect the battery from the vehicle! However, you should take extra care when using Recond because the voltage is 15.8V. Most manufacturers consider everything to be fine as long as voltage is below 16V and CTEK is under that limit by a good margin, even during Recond. Note that the service life of some components is shortened by high voltage. A rule of thumb says that a light bulb's life span is halved by increasing voltage by 5%, but this is normally not any great danger. If you have any sensitive electronics for which the manufacturer warns against high voltage: disconnect them!

## **Can you just connect up and then forget the charger?**

Always check that the charger has switched to maintenance charging mode before leaving the charger unattended and connected for long periods of time. Chargers must be disconnected from batteries where the charger does not switch to maintenance charging within three days.

If the charger has switched over to maintenance charging, then everything is as it should be, the battery is probably healthy and will function for a long period of time together with your CTEK charger.

If the charger has not switched over to maintenance charging (green lamp lit) within a couple of days, then this is a sign that something is wrong.

Possible causes:

- A large older type of battery, antimony batteries, behave differently.
- Charging takes longer and the battery can be overcharged if large consumers are connected to the battery.
- The battery is sulphated from start. Charging will then take longer, as the battery's higher inner resistance limits how much current it can receive.
- The battery is spent and needs to be replaced.

## **Are there CTEK chargers for other battery types?**

CTEK also produces the CTEK LITHIUM XS charger, which has an ideal charging programme for 4x LiFePO<sub>4</sub> (lithium iron phosphate) with a nominal 12V terminal voltage.

The CTEK LITHIUM XS can also communicate with the battery's built-in electronics if the electronics have shut down the battery to protect it against deep discharging.

## **Can I charge a 24V system with two 12V chargers?**

Yes, this is perfectly OK and is preferable for the batteries. Connect one charger for each battery.

## **Does CTEK have a Y-cable so you can charge 2 motorcycles with one charger? It would be practical so I could maintenance charge 2 motorcycles all winter without having to switch the charger between them,**

CTEK has never supplied Y-cables because it is an unsafe solution. With a Y-cable, you connect the batteries of the two motorcycles. You could compare this to the starter cables you use to jump-start a car. If one battery is fully charged and the other is completely drained, there is an incredibly high current between the batteries. But the difference is that the cable is much thinner than if you have starter cables between 2 cars. There are two risks. The cable could burn off – and then you'd have to pray to a higher power that the cable is the only thing burned. If the Y-cable is fuse protected and the fuse is tripped, you think you're charging even though you're not. This leads to a lot of anger and expense when spring arrives. A better method is to have one INDICATOR on each MC. When you check on the bikes, you can then easily see if you need to switch the charger from one MC to the other. Naturally, it would be even easier to have one charger for each MC.

## **Why do you connect minus to ground and not to the battery?**

Vehicles with start stop technology have a battery management system, by connecting directly to the negative / ground terminal you bypass the BMS sensor this can confuse the system when the vehicle is restarted after charge. Also, you can connect a CTEK charger directly to the minus pole instead of to the chassis without any risk. CTEK recommends connecting the minus clamp to ground instead of the minus pole to eliminate the risk of sparking close to the battery. Explosive oxy-hydrogen gas could be found near the battery. However, CTEK chargers are non-sparking and with their smart charging, generate minimal oxy-hydrogen gas. There is therefore very little risk associated with connecting both clamps to the battery poles.

## **Can I connect all of my 12V batteries and maintenance charge them all at the same time?**

That is possible. But remember that all batteries should be fully charged individually before they are connected in parallel. Bear in mind that the combined size of the batteries must not exceed the recommended charging range of the charger. If the batteries differ greatly in size (Ah), age and condition, this could cause great wear to the batteries that are in the best condition. A battery in good condition that is being stored for the winter might self-discharge under 90% of fully charged once or twice over the course of the winter. But batteries in poor condition may do this once or twice a week. If the batteries are parallel connected with a charger connected, each individual battery does not get the charge it needs. It may be easier to set an INDICATOR on all individual batteries and move a charger between the batteries needing charging. This gives each battery the best charging based on its individual needs and no battery will become worn and require early replacement.

## **Are the primary and secondary sides galvanically separated in your chargers?**

Yes, all CTEK chargers are galvanically separated.

## **Can I leave the charger connected to the battery for a long time?**

Yes! CTEK chargers are developed to fully charge a battery and then automatically switch over to long term maintenance. Before leaving the charger unattended for long time, ensure that the battery is fully charged, indicated by a green light.

## **What charger is suitable for my vehicle?**

Choose charger depending on the size of your battery. The more amps the charger can deliver, the faster your battery will be recharged. A rough guide to correct charger size is to divide the battery Amp hour rating (Ah) by 10 e.g. If the battery Ah rating is 75Ah then  $75 / 10 = 7.5$ amps, so a charger rated at approximately 7 Amps would be suitable.

## **Can I use a smaller / bigger charger than recommended for my battery?**

Choose charger depending on the size of your battery.

Charging with a smaller charger than recommended will take longer time and will not optimally extend the battery life and performance.

Charging with a bigger charger than recommended will not result in a completely charged battery and will not optimally extend the battery life and performance.

## **Can I charge without removing the battery from the vehicle, or opening the caps?**

There is no reason to disconnect or remove the battery from the vehicle, or open the battery caps, while charging. CTEK chargers are spark proof and reverse polarity protected and electronic safe.

## **My charger gets very warm, is it normal?**

Yes, that is normal when the charger is working hard in the bulk stage. The heat is developed in certain circumstances and is depending on the receiver (battery).

The charger does not necessarily heat up while charging another battery.

## **My charger does not start charging, is it broken?**

CTEK chargers needs some counter voltage to start providing tension/current the minimum requirement is 2V

If the connection is poor between the charger and the battery, the charging does not start.

If the battery is completely flat, 0V, the charging does not start.

If you think the product is faulty and within warranty:

1. Connect the product to another battery
2. Connect the product to mains
3. Check if the LEDs light up
4. Press the mode button and see if it works

If you still believe the charger is faulty, please return it with the receipt to the retailer.

## **Can I charge Lithium batteries with a regular CTEK charger and vice versa?**

No. Lithium batteries need a different charge than lead/acid batteries. Due to severe risks if overcharging, we do not recommend using a CTEK charger that is developed for lead/acid batteries, for that purpose. Charging lead/acid batteries with a Lithium charger does not give the best result and cannot be recommended.

## **What is AGM?**

AGM stands for Absorbed Glass Mat and differs from a standard Flooded battery in that the electrolyte is held on a fibre glass mat and pressed against the active plate area, instead of being allowed to flood around the plates. This type of battery has a low internal resistance and can accept charge very quickly making it ideal for the modern start stop systems. If the battery casing should become damaged the electrolyte will not leak out.

## **What is EFB or ECM?**

EFB stands for Enhanced Flooded Battery, ECM stands for enhanced cyclic mat, two different names for the same type of battery and both are similar in set up to a standard Flooded battery. There are some design changes with this technology, active plate material is more dense, anti-corrosion treatment for negative and positive grid and lower specific gravity to improve charge acceptance are just some of the differences. The EFB battery provides a more cost-effective battery solution over more expensive AGM type batteries.

## **What is CA/CA?**

Calcium/Calcium batteries are a flooded low maintenance or maintenance free battery usually VRLA type. During construction some of the Antimony used in the construction is replaced by Calcium (2% approx.). The benefits are a more robust grid, low water loss and longer shelf life.

## **What is WET/ FLOODED?**

The Flooded battery consists of a series of negative plates (sponge lead) and positive plates (Lead Dioxide) separator material and an Electrolyte solution which is approx. 65% water 35% Sulphuric acid. The flooded type of battery can be vented (which can be topped up) or VRLA which is sealed.



### **What is MF/VRLA?**

MF or Maintenance free also known as a VRLA or Valve Regulated Battery type battery is a flooded battery with the addition of Calcium / Silver to the grid material to reduce gassing and water loss. The battery becomes a small pressure vessel by the addition of a pressure valve (instead of the vents in a standard battery) designed to retain gasses created during charging process - Hydrogen and Oxygen within the battery long enough to recombine into water, which replenishes the electrolyte level. Because of this process these batteries are also called recombination batteries.

### **What is GEL?**

The Gel battery differs from any other lead acid battery because the electrolyte is no longer a fluid, Silica is added to create an electrolyte Gel which is applied to the active surface area of the plate. If the battery casing should become damaged the electrolyte will not leak out.

### **What is SPIRAL CELL?**

A very distinctive looking battery, and very similar internally to the AGM battery. But instead of the plates being flat they are wound together very tightly into a cylindrical shape, which gives the battery its name Spiral cell. If the battery casing should become damaged the electrolyte will not leak out.

### **What is LiFePO<sub>4</sub>?**

The lithium iron phosphate (LiFePO<sub>4</sub>) battery is a totally different technology from all the lead acid types mentioned previously. Due to its low weight and high-power output, it has become very popular in weight critical environments such as Powersports etc. The replacement cost of the unit at present makes its application restricted

### **What does SoC mean?**

SoC means State of Charge and gives the state of charge as a percentage. A battery that has 11.65V (or less) is flat and has SoC 0. A battery with 12.76V (or more) is fully charged and has SoC 100.

### **Can you charge a lead acid battery with the Lithium mode?**

No - CTEK recommend the correct charge mode be used at all times.

### **Can I charge a dead battery with a CTEK charger?**

Most CTEK charger require a minimum battery voltage of 2V. If the battery voltage is below 2V you will need one of our chargers with a "Supply mode" to accomplish this. The Supply Mode function is currently available on our Multi US 7002, Pro25 series as well as our MXS 25EC chargers in North America.

### **Can I leave the charger connected to the battery for a long time?**

Yes. CTEK chargers are designed to fully charge a battery and then automatically switch over to long term maintenance. Before leaving the charger unattended for a long time, ensure that the battery is fully charged, as indicated by the green LED.

# CTEK

**CTEK SWEDEN AB**  
ROSTUGNSVÄGEN 3  
SE-776 70 VIKMANSHYTTAN  
SWEDEN  
[WWW.CTEK.COM](http://WWW.CTEK.COM)