Why are CTEK better than other Lithium Chargers on the market?

CTEK lithium chargers are designed for $LiFePO_4$ (Lithium Iron Phosphate)

Many chargers were designed with Lithium-Ion batteries in mind and rely on the internal BMS of the battery to protect it from harmful effects.

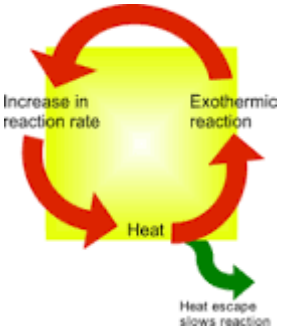
What's the difference between Lithium-Ion (LIB) and Lithium-Iron Phosphate ($LiFePO_4$)?

The nominal cell voltage of a $LiFePO_4$ is 3.2 volts – which gives a nominal 12.8 volts in a normal 4 cell battery

A Li-Ion battery has cells with a nominal voltage of 3.6 volts or 14.4 volts in a 4 cell battery.

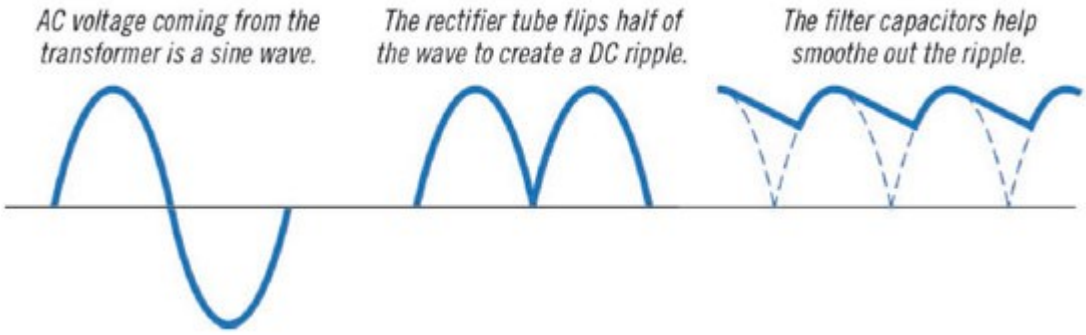
3.6v is the critical failure limit of $LiFePO_4$ batteries and will cause an exothermic reaction leading to thermal runaway and eventual failure of the battery. Chargers than allow more than 14.4v risk damaging the internal BMS of the battery. Charging above 15v can overpower the BMS and cause critical failure of the battery.

Some chargers state suitable for occasional use, this is because a discharged battery will cause an exothermic reaction which is mostly heat but some of the reaction will be passed as electrical current, when the battery is fully charged the only escape for excess energy is heat. Thermal runaway is where this excess heat itself causes a greater reaction and even greater heat in a disastrous spiral.



CTEK has a very low Ripple of less than 4%

What is Ripple?



The quality of the charging voltage and charging current is very important. A large ripple is the biggest cause of charger fires. A high current ripple heats up the battery which has an aging effect on the positive electrode. High voltage ripple could harm other equipment that is connected to the battery. CTEK battery chargers produce very clean voltage and current with low ripple.

Some manufacturers cleverly hide this figure as efficiency and can be as high as 25% which can mean nearly 16 Volts being put into the battery.

CTEK truly maintain the battery at the best level.

As $LiFePO_4$ batteries have a low standing discharge rate a timed circuit maintenance can add to much power when the battery doesn't need it and cause overheating. CTEK have a 10 day float from fully charged before the pulse recharging cycle kicks in. Some others have a 30 minute charge followed by 30 minutes float meaning the charger is overcharging a fully charged battery.

Read the small print!

Many manufacturers hide conflicting information in the small print. Many claim to be suitable only for this claim to be undermined in the small print by listing LIB (Lithium-Ion) and not $LiFePO_4$, occasional use only or even as far as Do Not Use.