

TROLLTEK™

TROLLTEK™ DC/DC LITHIUM BATTERY CHARGERS

P/N - TKCH7, TTKCH8, TTKCH9

User Instruction Manual



INTRODUCTION

The Trolltek™ range of DC to DC Lithium Battery chargers are ideal for onboard marine installations in harsh salt water environments. Each unit is waterproof, dustproof and shockproof ensuring they withstand the riggers of the marine world.

Installing a onboard DC/DC charger helps your lithium batteries recover while you're running at sea and can also be triggered when solar or AC chargers are connected. Keeping a DC/DC charger greatly simplifies your Lithium battery charging.

DESIGNED FOR LITHIUM

Trolltek™ charges are supplied configured for use with the Trolltek™ range of Lithium batteries with charge voltages pre-set to optime levels making them simple and error free for users. Trolltek™ chargers are also compatible with many other leading brands of Lithium batteries (refer to charge specifications below to check for your application).

Multi-stage charging gives batteries a longer life and better performance compared to traditional battery chargers.

Bulk charge stage keeps the charger at a constant current until a set voltage is reached, this typically achieves 80% of the batteries capacity in the shortest possible time.

Absorption charge stage adjusts the charge rate to bring the battery up to 100% capacity and ensuring maximum absorption.

Trolltek™ chargers include smarts and automatic technology so will not overcharge your lithium batteries and are suitable for constant connection to your battery even after full charge has been achieved.

HOW TO INCORPORATE A DC/DC CHARGER INTO YOUR INSTALLATION

Select a Trolltek™ DC/DC charger to match the Lithium battery voltage, for example, if running a 36V Lithium battery, select TTKCH3 that is designed to charge 36V batteries.

Connect power to the input cables (typically 12V) and connect the lithium battery to the output cables ready to charge.

The DC/DC charger won't turn on until a +12V signal is supplied to the yellow input trigger wire. If the trigger wire function isn't required, connect the yellow wire to the red input wire and the DC/DC will be permanently activated.

EXAMPLE: If incorporating the Trolltek™ DC/DC charger into a boat with trolling motor setup, users would typically take the input 12V power from the boat's primary starting battery as this is connected to the outboard. As the DC/DC draws power, the outboard should replenish power from the outboard charging system.

NOTE: The DC/DC does not monitor the supply battery voltage so has potential to draw down the starting battery voltage. To overcome this possible scenario, users can connect the yellow trigger wire to the boat engine run signal so the DC/DC is only running when the outboard is running. This works well assuming the outboard can deliver 438W of power (~36A @ 12V). Some outboards won't be able to deliver this power when the engine is idling so there is still a risk of flattening the starting battery.

The ultimate solution is to incorporate the Trolltek™ Programmable Voltage Sensing Relay into the design. The PVSR monitors the starting battery voltage and only activates the relay to deliver power to the DC/DC charger under optimal conditions that the user programs. For example, if the starting battery voltage increases to 13.2V or greater for 30 seconds, the PVRS can be programmed to automatically close its relay contacts which powers the DC/DC charger. However, if the starting battery voltage drops to 12.3V for a period of 5mins, the PVSR is programmed to open the relay contacts and turn the DC/DC charger off. Incorporation of the PVSR eliminates the potential for the DC/DC charger accidentally drawing down the starting battery whilst maximising the run time for the lithium battery charger and accommodating for periods where the boat might be idling.

SPECIFICATIONS

P/NO.	TTKCH7	TTKCH8	TTKCH9
Input rated voltage	12V/24V DC		
Input voltage range	10-36V DC		
Efficiency	96% @ 24Vin		
Output voltage	14.6V DC	29.2V DC	43.8V DC
Charging current	30A	15A	10A
Output power	400W	400W	300W
Ripple & Noise	300mVp-p	470mVp-p	580mVp-p
Ignition function	Standard 10-36V		
Working temperature	-40 ~ +80°C		
Working humidity	10% ~ 90% RH		
Dimension	200*78*33mm (7.87*3.07*1.3 inch)		
Weight	1.1kgs		
Input cables type	10AWG @ 0.45m cables with standard rings M8/M10		
Output cables type	12AWG @ 0.45m cables with standard rings M8/M10		
Cooling	Cooling by free air convection		

IMPORTANT SAFETY INSTRUCTIONS

Save these Instructions – Danger: Please read the user manual and safety instructions carefully before using the appliance.

- Ensure good VENTILATION around the unit
- This series is designed to charge 12V, 24V and 36V lithium batteries. Do not attempt to use with batteries with voltages not matching the chargers specified voltage.
- Disconnect the BATTERY supply and take care when installing power cables
- Do not probe the charger with conductive materials.
- Do not use this product in an enclosure containing lead-acid batteries. These batteries vent explosive hydrogen gas, which can be ignited by sparks from electrical connections.

- Do not use this product where there are flammable fumes or gases.
- Do not try to use the charger for any other purpose than what is presented in this manual.
- Unplug the charger before cleaning and when there is no battery pack connected to the charger.
- Do not try to connect two chargers together.
- Do not use the charger in the circumstances that the input/output Polarity does not match the load polarity.
- The cover may under no circumstances be opened. If the cover is damaged, then the charger may no longer be used.
- Do not recharge non-rechargeable batteries.
- Do not connect output DC clamps to the carburetor, fuel lines, or sheet metal body parts.
- Never attempt to charge a frozen battery.

WARNING: To avoid the risk of fire, electrical shock, or electrocution.

- Always remove the battery pack before cleaning, inspecting, or performing any maintenance on the tool.
- Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

NOTE: This equipment generates, uses, and can radiate radio frequency energy, and if not installed and used in accordance with the instructions, may cause harmful interference to radio or television reception, The reception can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

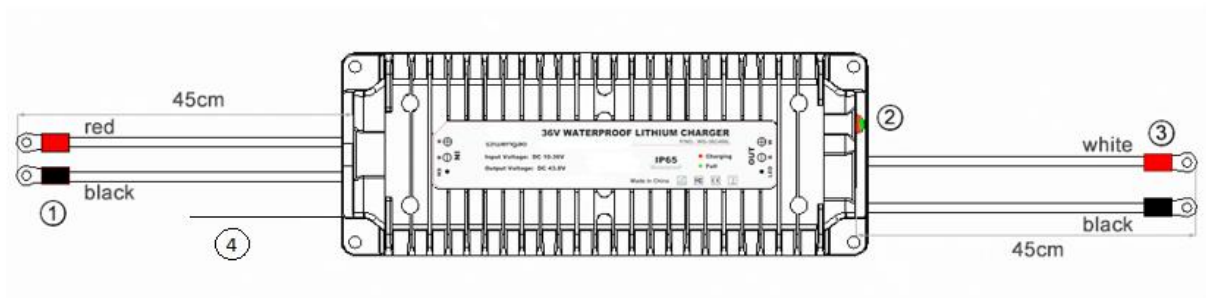
- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and the receiver.
- Consult the dealer or an experienced radio/TV technician for help.



CHARGING A BATTERY

Follow these steps to charge a battery:

1. Connect the DC output cable (3) to the AUXILIARY battery terminal receptacle.
2. Connect the DC input cable (1) to the STARTING battery terminal receptacle.
3. Connect the ACC input wire cable (4) to positive 12V power.
NOTE: This wire can be used to turn the charger on and off via a switch or relay.
4. The POWER LED light should be ON.
5. When batteries are fully charged, the LED indicator will be GREEN.



COLOR LED FOR STATUS INDICATION

The Charger LED Light (2) illuminates in a specified order to show the current battery status.

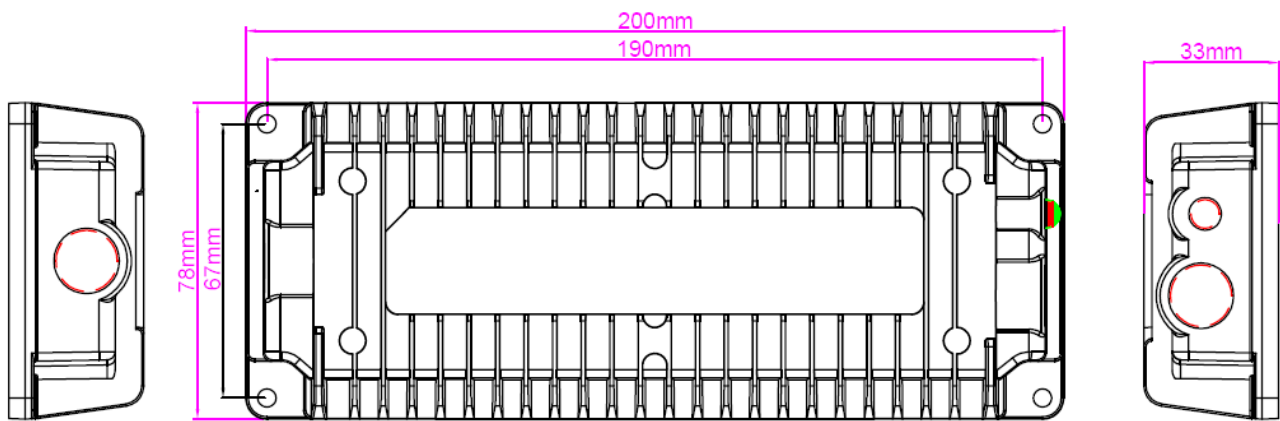
RED: Battery is charging **GREEN:** Fully charged

FUNCTION & SAFETY

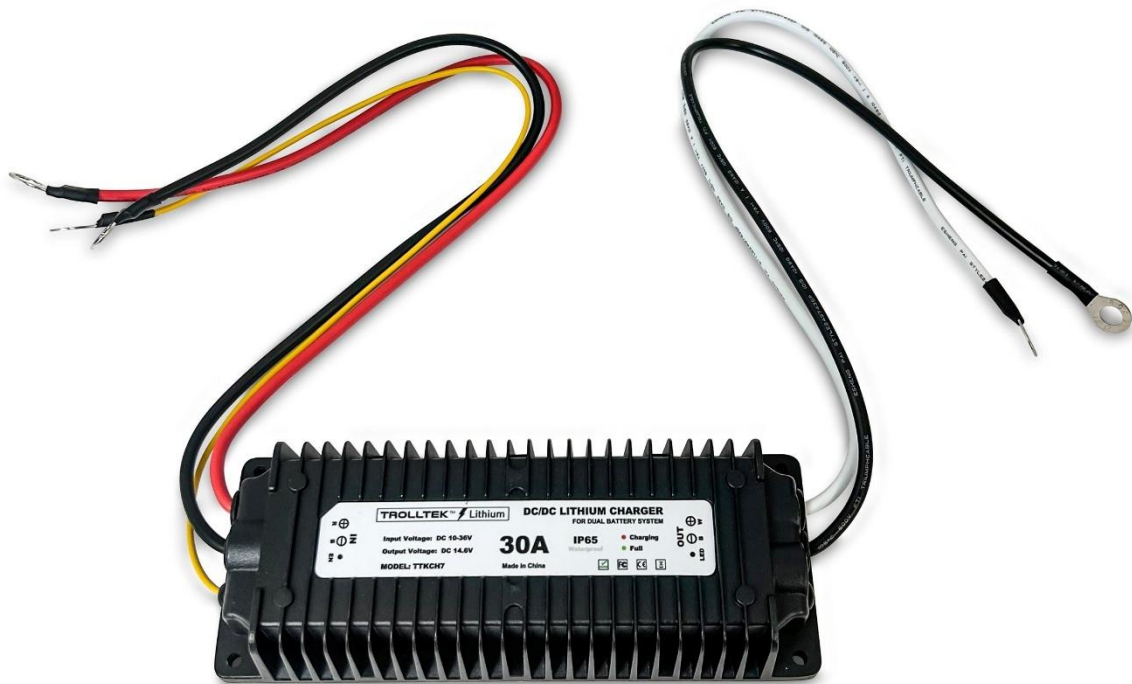
EMC Moisture-proof	EN 55014-1:2017+A11:2020
	EN 55014-2:2015
	EN IEC 61000-3-2:2019
	EN 61000-3-3:2013+A1:2019
MTBF	MTBF≥100,000H
Waterproof level	IP65

1. Short-circuit protection – protects the charger from short-circuit damage.
2. Overcurrent protection – protects the charger from over-current demand.
3. Overvoltage protection – protects the batteries from damage.
4. Overtemperature protection – protects the charger and batteries from damage.
5. Waterproof protection - protects the charger from damage.
6. Under voltage protection – 9.5V (10.5V reconnect)

DIMENSIONS



NOTE: The dimensions have a $\pm 0.5\text{mm}$ tolerance

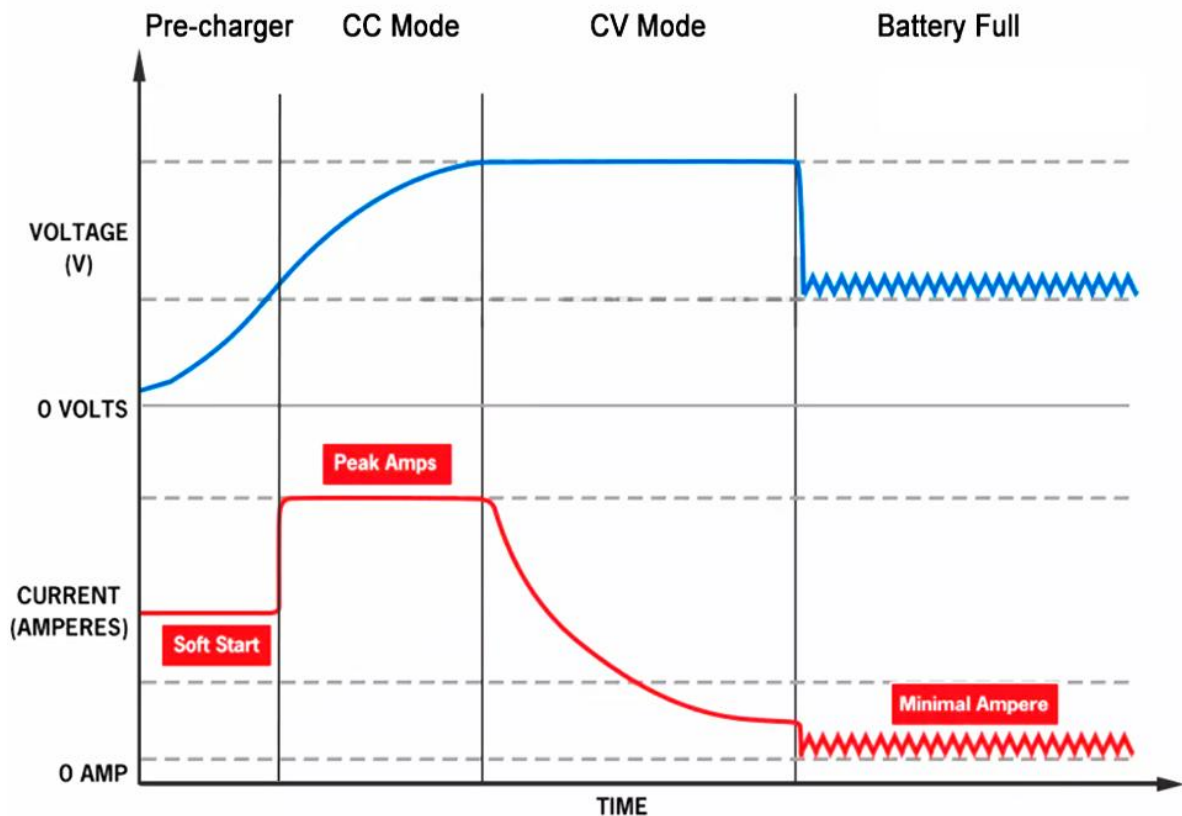


2-STAGE AUTOMATIC CHARGING

This is a fully automatic battery charger with 2 charge stages.

Automatic charging protects your battery from being overcharged so you can leave the charger connected to the battery indefinitely.

2-stage charging is a sophisticated charging technique that gives your battery longer life and better performance compared to using traditional chargers.



BULK (CC MODE)

The Bulk stage reduces charging time by charging the battery at the maximum rate (constant current) to a set voltage, at which point the battery is approximately 80% charged.

ABSORPTION (CV MODE)

The absorption stage charges the battery to 100% by adjusting the charge rate allowing the battery to absorb more power.

WARRANTY INFORMATION

The below information is an addition to information covered under the standard Terms and Conditions of sale at your place of purchase.

DC/DC LITHIUM BATTERY CHARGERS – Is warranted for manufacturing faults and defects for a period of 12 months from date of purchase.

Our goods come with guarantees that cannot be excluded under the Australian Consumer Law. You are entitled to a replacement or refund for a major failure and compensation for any other reasonably foreseeable loss or damage. You are also entitled to have the goods repaired or replaced if the goods fail to be of acceptable quality and the failure does not amount to a major failure.

SUPPORT INFORMATION

SALES ENQUIRIES:

P: 1300 246 406

E: info@trolltek.com.au



SUPPORT REQUESTS

Via the website support request - <https://trolltek.com.au/pages/service-request>

ADDRESS: 47 Eagleview Place, Eagle Farm QLD 4009, Australia