



DC/DC Battery Charger

For lead-acid batteries



D250S

User Manual and Guide to professional charging of starter and deep cycle batteries.

Model 1027



INTRODUCTION

Congratulations on purchasing your new CTEK professional switch mode battery charger. This charger is part of a range of professional battery chargers from CTEK SWEDEN AB.

It represents the latest technology in battery charging with charging and analysis in five steps with temperature compensation. **Read this User Manual and follow the instructions carefully before using your new charger.**

SAFETY

- The charger is designed for 12V lead-acid batteries mounted into vehicles. Do not use the charger for any other purpose
- Use safety glasses when connecting or disconnecting a battery.
- Battery acid is corrosive. Rinse immediately with water if acid comes into contact with skin or eyes. Seek medical advice.
- Make sure that the cables are not being pinched or in contact with warm surfaces or sharp edges.
- While charging, a battery can emit explosive gases, avoid sparks in the immediate area.
- Always provide for proper ventilation during charging.
- Avoid covering the charger.

INSTALLING THE CHARGER IN THE VEHICLE

Install the charger on a surface where it can be properly fixed and where the charger is not exposed to fuels, oils or splashes of dirt. Mount the charger with screws intended for the surface and attach it with one screw in each of the four holes in the corners of the charger. See picture 1. Mount the charger with M4 or ST4.2 screws with maximum torque of 2Nm.



Picture 1

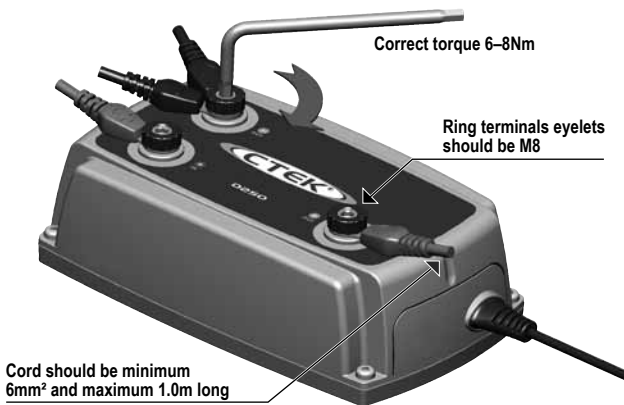
WARNING

Due to high risk of short circuit, batteries should not be connected to power cords when installing the charger.

CONNECTING THE CHARGER

1. Identify the supply cords and connect the positive power cord to screw terminal marked with IN +
2. Identify the target battery cords and connect the positive power cord to screw terminal marked with OUT +
3. Connect the negative power cords from supply and target battery to screw terminal marked with IN - and OUT -.
4. Attach the temperature sensor to the target battery.

Note: Power screws should be fastened with torque 6–8Nm, see picture 2. Exceeding this recommendation may severely damage the charger. Reverse polarity will damage the charger.



Picture 2

BATTERY TYPES AND SETTINGS

D250S is intended for 12V WET, MF, AGM and most GEL lead-acid batteries. Please consult the battery manufacturer when in doubt.

TEMPERATURE COMPENSATION

D250S has a temperature sensor cable. The units will automatically adjust the charging voltage if the temperature deviates from +25°C. A high temperature lowers the voltage and cold conditions is handled by higher voltage. The temperature should be measured close to the battery, therefore attach the sensor to the battery.

SPECIFICATION

Model	1027
Max supply voltage	22V DC
Integrated battery separator	D250 starts when supply voltage is above 13.4V for 5 sec. D250 stops when supply voltage is below 12.8V for 10 sec.
Charging voltage	14.4V at +25°C
Max charging current	20A
Current ripple*	<1%
Ambient temperature	-40°C – +70°C. Output power is automatically reduced at temperatures above +25°C
Cooling	Natural convection
Charger type	Multi-step, fully automatic
Battery types	All types of 12V Lead Acid, WET, MF, AGM and most GEL batteries
Battery capacity	40–500Ah
Protection class	IP65
Weight	0.7 kg

*) The quality of the charging voltage and charging current are very important. High current ripple heats the battery and ages the positive electrode. High voltage ripple can damage other equipment connected to batteries. The battery chargers from CTEK produces very high quality voltage and current with low ripple.

MAINTENANCE

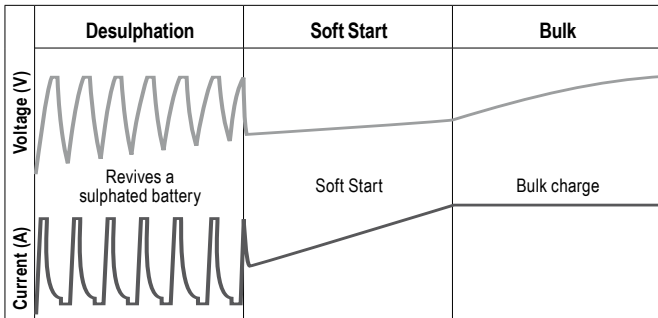
The charger is maintenance-free. The charger must not be opened; doing so will invalidate the warranty. The charger casing can be cleaned using a damp cloth and mild cleaning agent.

Note: Disconnect supplying and target battery before cleaning the charger.

LIMITED WARRANTY

CTEK SWEDEN AB, Rostugnsv. 3, SE-776 70 VIKMANSHYTTAN, SWEDEN issues this limited warranty to the original purchaser of this product. This limited warranty is not transferable. The warranty applies to manufacturing faults and material defects for two years from the date of purchase. The customer must return the product together with the receipt of purchase to the point of purchase. This warranty is void if the battery charger has been opened, handled carelessly or repaired by anyone other than CTEK SWEDEN AB or its authorised representatives. CTEK SWEDEN AB makes no warranty other than this limited warranty and is not liable for any other costs other than those mentioned above, i.e. no consequential damages. Moreover, CTEK SWEDEN AB is not obligated to any other warranty other than this warranty.

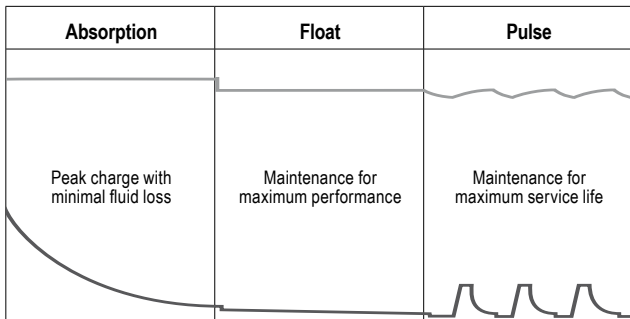
PROGRAM DESCRIPTION



PARAMETERS

The charger starts charging the target battery when the voltage of the supply source exceeds 13.4V for 5 sec. The charger stops charging the target battery when the voltage of the supply drops below 12.8V for 10 sec.

	Desulphation	Soft Start	Bulk
	Desulphation with pulses restores sulphated batteries.	Current is increased to 20A in a controlled manner.	Main charge, where 80% of the batteries capacity is recovered. The charger delivers maximum current until the terminal voltage has risen to the correct level. Bulk has a maximum time, 8h, at which point the charger automatically switches to Absorption.



Absorption	Float	Pulse
<p data-bbox="83 754 343 845">14.4V until the current has dropped to 0.4A or max 12h. Enters Analysis mode when finished.</p>	<p data-bbox="359 754 570 797">Charging with constant voltage</p>	<p data-bbox="629 754 888 893">The state of charge varies between 95% and 100%. The battery receives a pulse when the voltage drops. This keeps the battery in trim when not in use.</p>



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