

## CONGRATULATIONS

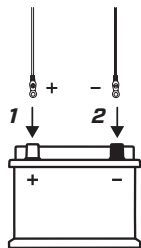
on the purchase of your new professional switch mode battery charger. This charger is included in a series of professional chargers from CTEK SWEDEN AB and represents the latest technology in battery charging.

## Read safety instruction



## HOW TO CHARGE



1. Connect the charger to the battery.

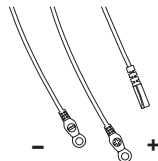


### For batteries mounted inside a vehicle

1. Connect the charger according to the vehicles manual.
2. Connect the charger to the wall socket.
3. Disconnect the charger from the wall socket before disconnecting the battery.

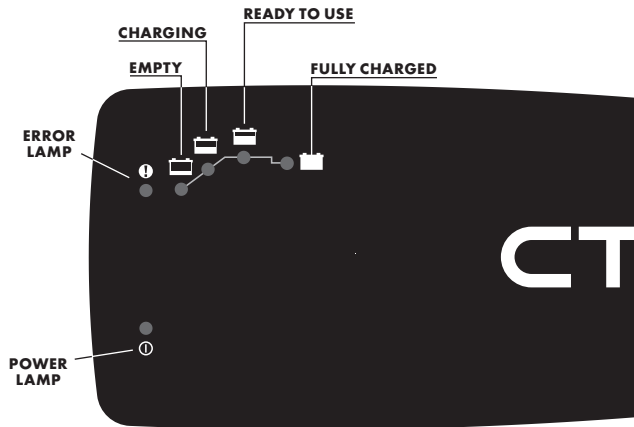


2. Connect the charger to the wall socket. The power lamp will indicate that the mains cable is connected to the wall socket. The error lamp will indicate if the ring terminals (M10) are incorrectly connected. The reverse polarity protection will ensure that the battery or charger will not be damaged.
3. Follow the indication lamps through the charging process.  
The battery is ready to start the engine when  is lit.  
The battery is fully charged when  is lit.
4. Stop charging at any time by disconnecting the mains cable from the wall socket.



### Temperature sensor

The temperature sensor works automatically and will adjust the voltage to the ambient temperature. Place the temperature sensor as close to the battery as possible.



## POWER LAMP

If the power lamp is lit with a:



### 1. STEADY LIGHT

The mains cable is connected to the wall socket.

### 2. FLASHING LIGHT:

The charger has entered the energy save mode. This happens if the charger isn't connected to the battery within 2 minutes or the battery voltage is below 2V.

## READY TO USE

The table shows the estimated time to charge a battery from empty to 80%

BATTERY SIZE (Ah)	TIME TO 80% CHARGED
40Ah	1.5h
100Ah	3h
200Ah	6h
300Ah	16h

## ERROR LAMP

If the error lamp is lit, check the following:





### 1. Is the positive ring terminal connected to the battery's positive pole?


### 2. Is the charger connected to a 12V battery?

### 3. Has charging been interrupted in or ?

Restart the charger. If charging is still being interrupted, the battery...

...is seriously sulphated and may need to be replaced.

...can not accept charge and may need to be replaced.

...can not keep charge and may need to be replaced.

## TECHNICAL SPECIFICATIONS

<b>Model number</b>	1093
<b>INPUT</b>	220-240VAC, 50-60Hz, max 2.9A
<b>OUTPUT</b>	25A, 12V
<b>Start voltage</b>	2.0V Lead Acid batteries
<b>Back current drain*</b>	Less than 2.3Ah/month
<b>Ripple**</b>	Less than 4%
<b>Ambient temperature</b>	-20°C to +50°C (-4°F to +122°F)
<b>Battery types</b>	All types of 12V Lead Acid batteries (WET, EFB, Ca/Ca, AGM and GEL).
<b>Battery capacity</b>	40-500Ah, Lead Acid battery types
<b>Insulation class</b>	IP44
<b>Warranty</b>	2 years

\*) Back current drain is the current that drains the battery if the charger is not connected to the mains. CTEK chargers have a very low back current.

\*\*) The quality of the charging voltage and charging current is very important. 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.

## CHARGING STEPS

	1	2	3	4	5	6	7
	15.8V	Max 25A until 12.6V	Increasing voltage to 14.4V, max 25A	Declining current 14.4V	Checks if voltage drops to 12V	13.6V max 25A	12.9V - 14.4V 20-1.2A
Time limit:	8h	8h	20h	16h	3 minutes	10 days charge cycle restarts if voltage drops	Charge cycle restarts if voltage drops

### STEP 1 DESULPHATION

Detects sulphated batteries. Pulsing current and voltage, removes sulphate from the lead plates of the battery restoring the battery capacity.

### STEP 2 SOFT START

Tests if the battery can accept charge. This step prevents that charging proceeds with a defect battery.

### STEP 3 BULK

Charging with maximum current until approximately 80% battery capacity.

### STEP 4 ABSORPTION

Charging with declining current to maximize up to 100% battery capacity.

### STEP 5 ANALYSE

Tests if the battery can hold charge. Batteries that can not hold charge may need to be replaced.

### STEP 6 FLOAT

Maintaining the battery voltage at maximum level by providing a constant voltage charge.

### STEP 7 PULSE

Maintaining the battery at 95-100% capacity. The charger monitors the battery voltage and gives a pulse when necessary to keep the battery fully charged.

## LIMITED WARRANTY

CTEK, 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. The customer must return the product together with the receipt of purchase to the point of purchase. This warranty is void if the product has been opened, handled carelessly or repaired by anyone other than CTEK or its authorised representatives. One of the screw holes in the bottom of the product may be sealed. Removing or damaging the seal will void the warranty. CTEK 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 is not obligated to any other warranty other than this warranty.

## SUPPORT

For support, FAQ, latest revised manual and more information about CTEK products: [www.ctek.com](http://www.ctek.com).