

USER MANUAL

CTEK BATTERY CHARGER **PRO60/PRO120**

**2 YEAR
WARRANTY**



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. PRO60/PRO120 is a charger with multiple adjustable parameters.

DISPLAY AND BUTTONS



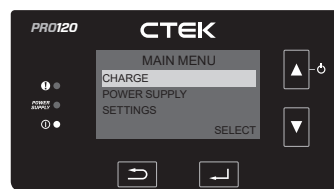
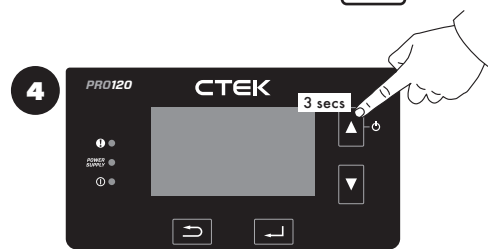
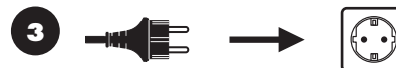
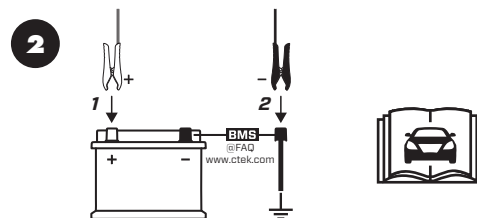
	ON/OFF-button. Press 3 seconds to start or interrupt charging. Press to scroll up in menu and to increase values
	Press to scroll down in menu or to decrease values.
	Press to activate selected program or setting.
	Press to step back or stop in menu.
	Lights red to indicate error (see errors and displays).
	Lights yellow when power supply mode is active.
	Power connected and switched on.

HOW TO OPERATE

1 Read safety instruction



- Lesen Sie die Sicherheitsanweisungen
 - Lisez les consignes de sécurité
 - Leer las instrucciones de seguridad
 - Leggere le istruzioni di sicurezza
 - Lees de veiligheidsaanwijzingen
 - Läs säkerhetsanvisningen
 - Læs sikkerhedsanvisningerne
- Les sikkerhetsinstruks
 - Lue turvallisuusohjeet
 - Přečtěte si bezpečnostní pokyny
 - Прочтите инструкцию по технике безопасности
 - Przeczytaj zalecenia dotyczące bezpieczeństwa



AUTO ADAPTIVE analyzes the battery and selects optimal current for the size of the battery. Auto Adaptive shall not be used when charging lithium batteries.

WARNING! Do not charge Lithium batteries (LiFePO₄) with any of the Lead Acid battery programs or vice versa.

LITHIUM Batteries with DISCHARGE Protection
Some Lithium batteries have an internal discharge protection that disconnects the battery cells from the battery terminals to avoid it becoming too deeply discharged. If this is the case the charger will start a wake up function to reconnect the cells. If the battery voltage after the wake up is below 8V, the charging process will not start. This is because of the inherent danger of charging to deeply discharged Lithium batteries.

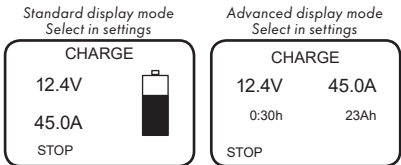
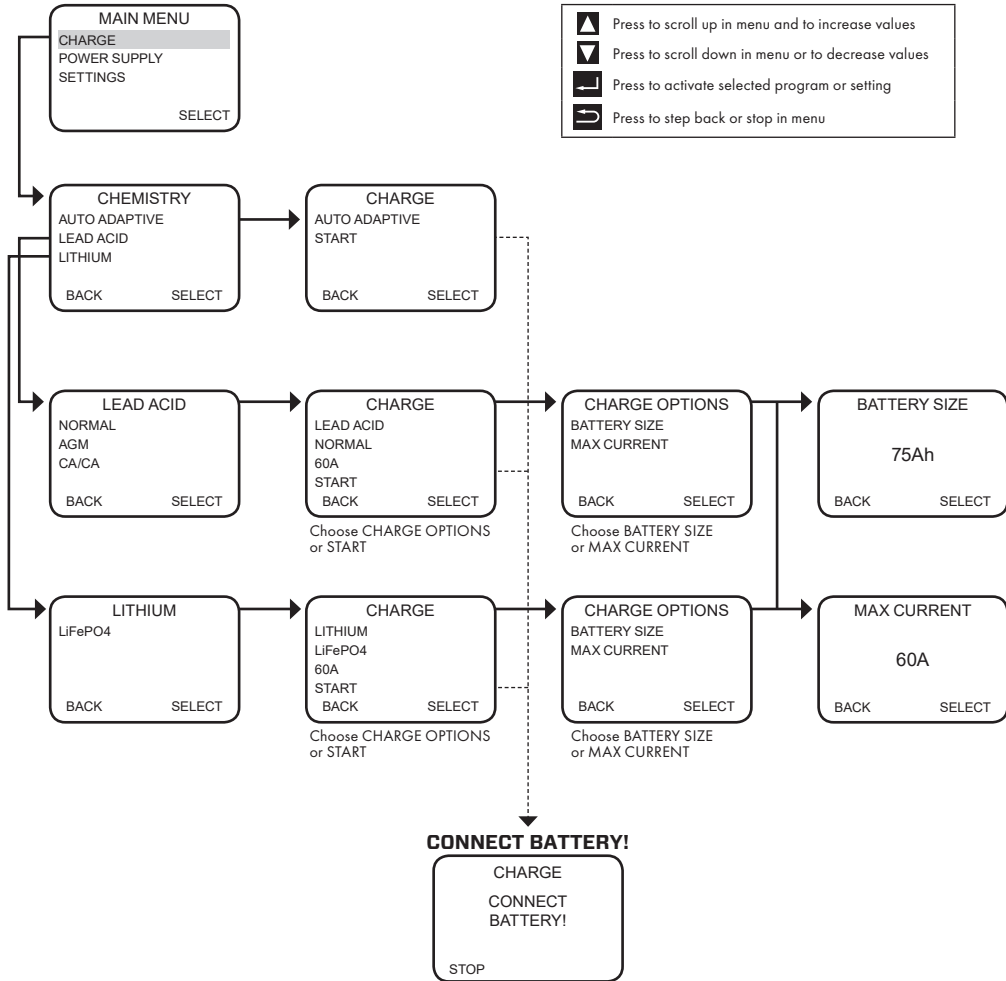
LOCK THE BUTTONS
Lock the buttons if charger used in public or unattended. Press and hold the buttons for 2s to lock/unlock the buttons.

POWER SUPPLY
Use the showroom mode when using the PRO60/PRO120 to supply power to the car when a battery is not connected. Spark protection is disabled when showroom mode is chosen. When using supply mode with a battery present, use the workshop mode.

CHARGE

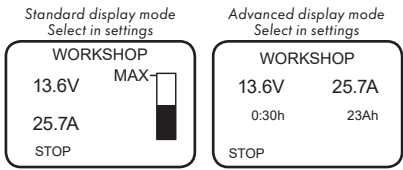
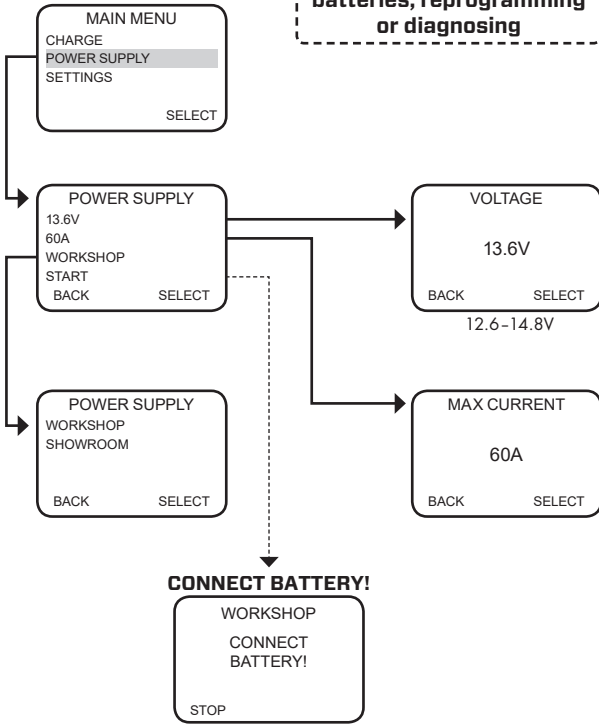
Use to charge or maintain batteries

- Press to scroll up in menu and to increase values
- Press to scroll down in menu or to decrease values
- Press to activate selected program or setting
- Press to step back or stop in menu



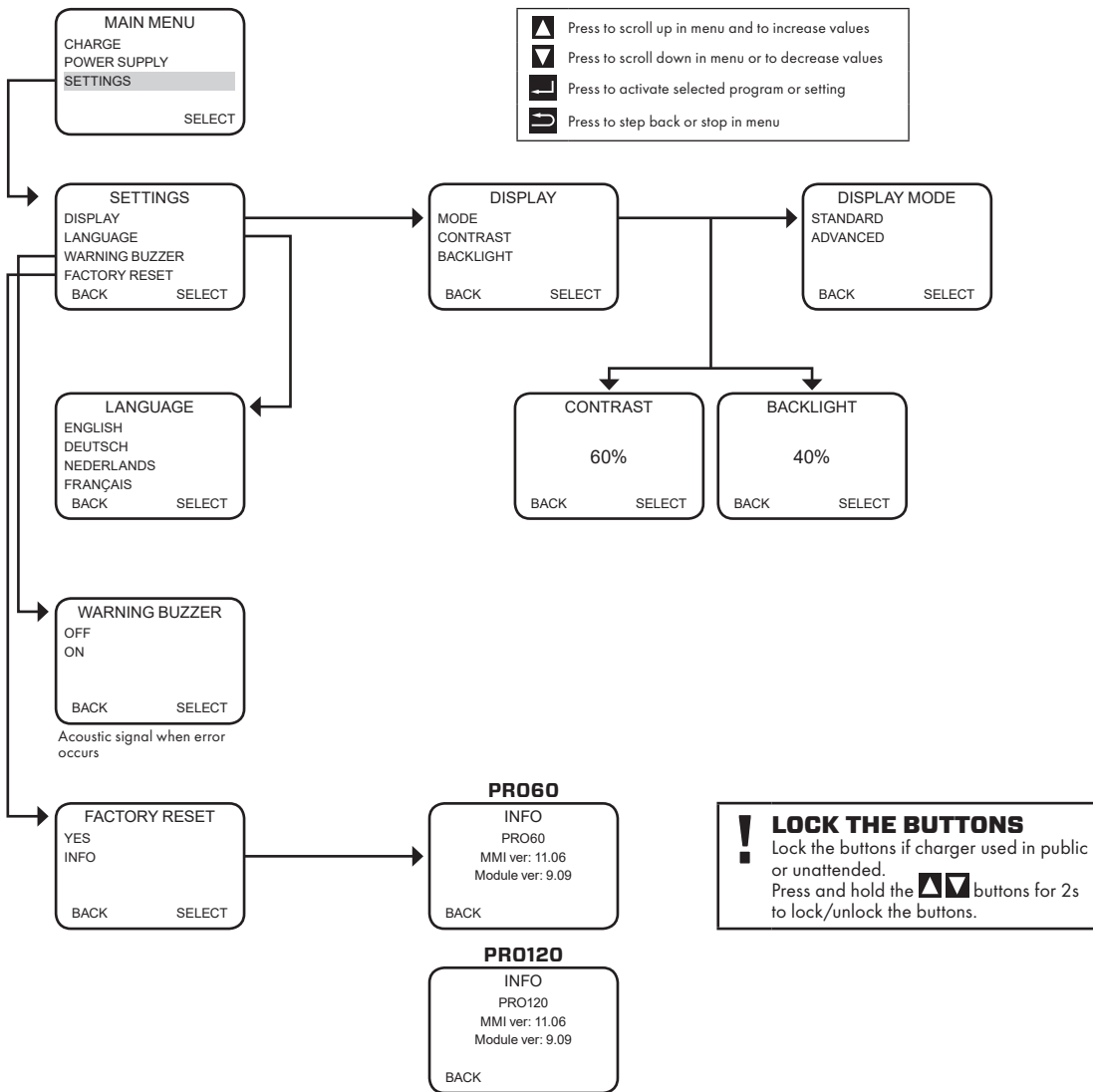
POWER SUPPLY

Use to supply vehicles with power when removing batteries, reprogramming or diagnosing

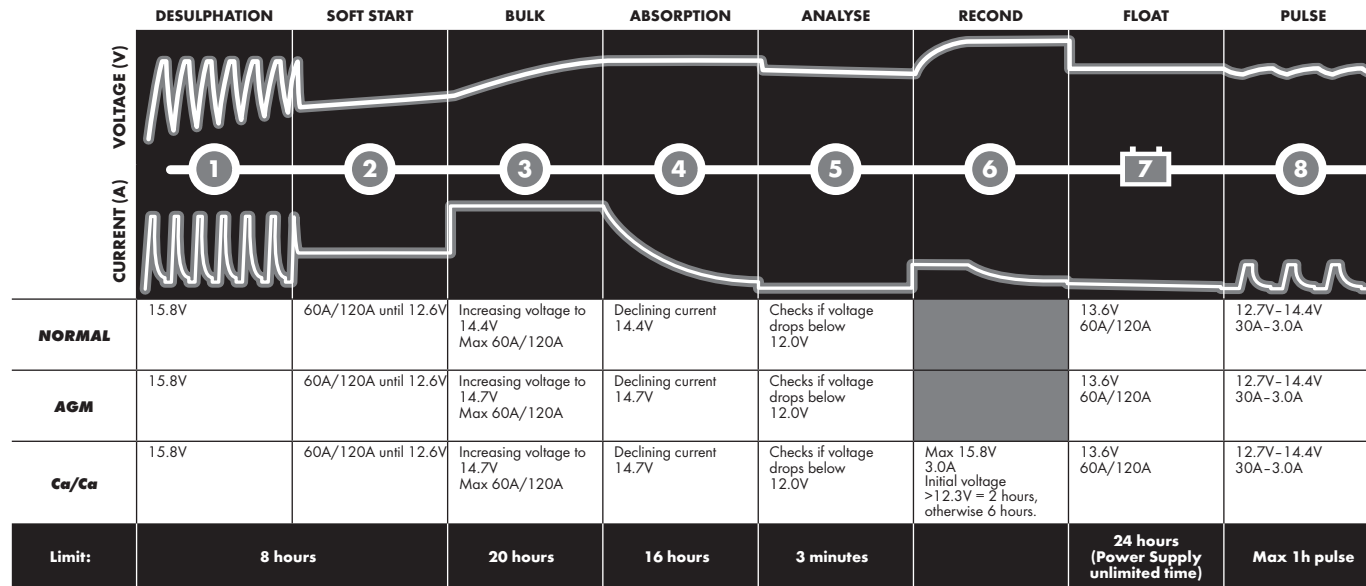


POWER SUPPLY
Use the showroom mode when using the PRO60/PRO120 to supply power to the car when a battery is not connected. Spark protection is disabled when showroom mode is chosen. When using supply mode with a battery present, use the workshop mode.

SETTINGS



CHARGING PROGRAMS LEAD-ACID BATTERIES



STEP 1 DESULPHATION

Detects sulphated batteries. Pulsing current and voltage, removes sulphates 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 charging a defective 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 cannot hold charge may need to be replaced.

STEP 6 RECOND

Select the Ca/Ca program to add the Recond step to the charging program. During the Recond step voltage increases to create controlled gassing in the battery. Gassing mixes the battery acid and gives back energy to the battery.

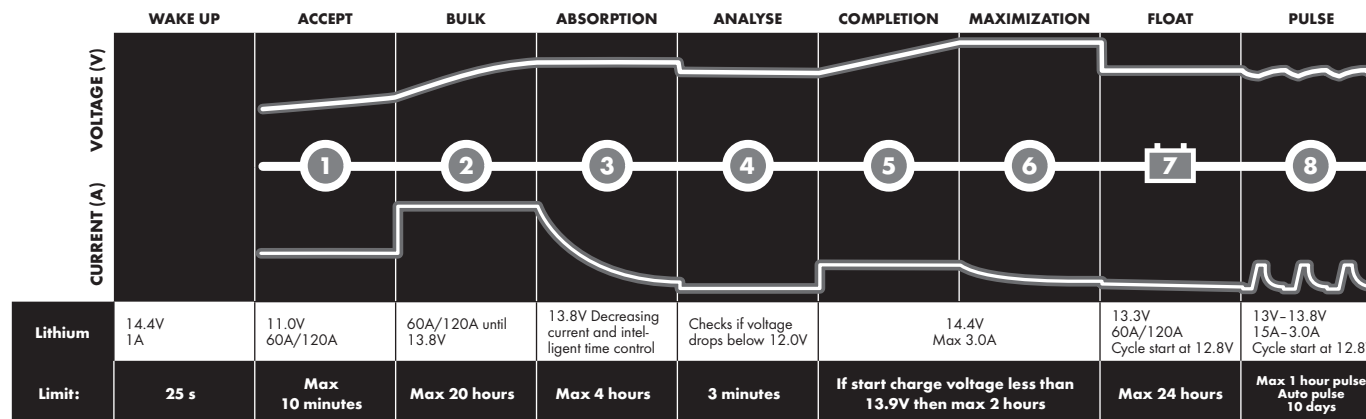
STEP 7 FLOAT

This step maintains the battery voltage by providing a constant voltage charge.

STEP 8 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.

CHARGING PROGRAMS LITHIUM BATTERIES



WAKE UP

Safely bypasses the discharge protection if active on the battery.

STEP 1 ACCEPT

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

STEP 2 BULK

Charging with maximum current until approximately 90% battery capacity.

STEP 3 ABSORPTION

Charging with declining current to maximize up to 95% battery capacity.

STEP 4 ANALYSE

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

STEP 5 COMPLETION

Final charge with increased voltage.

STEP 6 MAXIMIZATION

Final charge with maximum voltage up to 100% battery capacity.

STEP 7 FLOAT

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

STEP 8 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.

PRO60**RECOMMENDED CURRENT**

12V		
Current	Battery size Min	Battery size Max
5A	10Ah	150Ah
10A	20Ah	300Ah
20A	40Ah	600Ah
30A	60Ah	900Ah
40A	80Ah	1200Ah
50A	100Ah	1500Ah
60A	120Ah	1800Ah

- Using higher current than recommended may result in batteries not being completely charged.
- Using lower current than recommended will prolong the charging time.
- The currents are the maximum recommended current for battery charging. If a parallel consumer is connected then the current setting could be increased with this current value.

READY TO USE

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

		BATTERY SIZE					
		10Ah	20Ah	50Ah	150Ah	900Ah	1800Ah
CHARGING CURRENT	5A	2h	3h	8h			
	10A		2h	4h	12h		
	20A			2h	6h	36h	
	40A				3h	18h	
	60A				2h	12h	24h

PRO120**RECOMMENDED CURRENT**

12V		
Current	Battery size Min	Battery size Max
5A	10Ah	150Ah
10A	20Ah	300Ah
20A	40Ah	600Ah
40A	80Ah	1200Ah
60A	120Ah	1800Ah
80A	160Ah	2400Ah
100A	200Ah	3000Ah
120A	240Ah	3600Ah

- Using a higher current than the recommendation may result in batteries not being completely charged.
- Using a lower current than the recommendation will prolong the charging time.
- The currents shown are the maximum recommended current for battery charging. If a parallel consumer is connected then the current setting could be increased.

READY TO USE

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

		BATTERY SIZE					
		10Ah	40Ah	150Ah	900Ah	1800Ah	3600Ah
CHARGING CURRENT	5A	2h	7h	24h			
	10A		4h	12h			
	40A			3h	18h		
	80A			2h	9h	18h	
	120A				6h	12h	24h

CHARGE MODES

The table explains the different charge mode:

Mode	Explanation
NORMAL	Use to charge GEL, WET and MF batteries.
AGM	Use to charge most AGM batteries including AGM START/STOP types. Some AGM should use lower voltage (NORMAL Mode), check battery manual if unsure.
Ca/Ca	Use to charge Ca/Ca batteries including AGM START/STOP types. Use Ca/Ca program to maximize charge with minimum loss of fluid.
LITHIUM	Use to charge Lithium batteries.

TECHNICAL SPECIFICATION - PRO60

Model number	1089
INPUT	220-240VAC, 50-60Hz, 9.2A
OUTPUT	60A, 12V
Start voltage	2.0V Lead Acid batteries 8.0V LiFePO ₄ batteries
Back current drain*	Less than 2Ah/month
Ripple**	Less than 4% voltage
Ambient temperature	-20°C to +50°C (-4°F to +122°F)
Battery types	All types of 12V Lead Acid batteries (WET, Ca/Ca, MF, AGM, GEL) 12V (4cells) LiFePO ₄ batteries
Battery capacity	10-1800Ah, Lead Acid battery types 15-600Ah, LiFePO ₄ battery types
Insulation class	IP40
Warranty	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.

TECHNICAL SPECIFICATION - PRO120

Model number	1092
INPUT	220-240VAC, 50-60Hz, 9.2A
OUTPUT	120A, 12V
Start voltage	2.0V Lead Acid batteries 8.0V LiFePO ₄ batteries
Back current drain*	Less than 2Ah/month
Ripple**	Less than 4% voltage
Ambient temperature	-20°C to +50°C (-4°F to +122°F)
Battery types	All types of 12V Lead Acid batteries (WET, Ca/Ca, MF, AGM, GEL) 12V (4cells) LiFePO ₄ batteries
Battery capacity	10-3600Ah, Lead Acid battery types 15-1200Ah, LiFePO ₄ battery types
Insulation class	IP40
Warranty	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.

ERROR DISPLAYS

 Lights red to indicate error



ERROR



Wrong polarity
Reversed polarity, short circuit in charge cables or power supply overload error.
Action: Connect the charger according to “how to operate” or reduce in power supply.

OK



ERROR



Overvoltage
The charger is connected to a 24V battery.
Action: Connect the charger to a 12V battery.

OK



ERROR



Overtemperature
The battery is too hot to charge.
Action: Let the battery cool down or the battery is damaged and may need to be replaced.

OK

ERROR



Broken battery
Action: Check connections and settings, and retry charging, before replacing the battery.

OK

ERROR CODES

Very occasionally, an error code may appear on the PRO60/PRO120 LCD display screen which will be displayed as a number only.

73, 74 These error codes will appear when you first power up the unit and indicate that the main control switch cannot start communication with other internal hardware.

71, 72, 75, 76, 77 These error codes will appear when the unit is in operation and indicate that the main control switch cannot communicate with other internal hardware.

78 This error code will appear when the unit is in operation and indicates that an internal hardware component has a problem.

79 This error code will appear if a software update has not been successful.

In addition to the error codes there are few error text strings which may appear. These will appear just after a software update or hardware replacement and indicate hardware or software incompatibility.

- ‘Module hardware mismatch. Service needed!’
- ‘Module firmware mismatch. Service needed!’
- ‘Loaded firmware is not compatible with module hardware.’
- ‘Module bootloader did not start. Service needed!’

If any of these error codes are displayed on the screen, you could try to reset the operating system by disconnecting the PRO60/PRO120 from its power source, and then turning it back on again. If the error code is still displayed on the screen after this, please follow the warranty procedures outlined in this user guide.

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.