



12V 22 AMP 9 STAGE AUTOMATIC BATTERY CHARGER

USER MANUAL



KACHG1222



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1.0 Welcome and Safety

Thank you for purchasing a KickAss 12 Volt 22 Amp Smart Charger. This charger is controlled by a microprocessor with 9-stage charging characteristics for charging your batteries to their optimum. Please ensure you have read and understood all of the instructions, recommendations and warnings in this manual before operating the battery charger. Please also ensure that the battery charger is set up as illustrated in the installation instructions.

1.1 Flammable Gases and Fumes



Battery Releases
Flammable Gas



Keep Away
From Sparks



Keep Away From
Open Flames



Operate On Well
Ventilated Area

Charging Lead-Acid batteries can result in gases being released from the battery. The gases are flammable and care should be taken to ensure that there are no naked flames or sparks around the battery. The storage area of batteries should also be well ventilated during normal operation as well as during charging.

1.2 Operational Safety Instructions

Please follow the following operational safety instructions for the charger:

- The charger is designed for charging 12V batteries only.
- The charger is designed for indoor use only.
- Do not expose the charger to rain, moisture, sand or excessive dust.
- Do not place the charger so that dust, dirt or similar can be sucked in by the cooling fan.
- When not in use, store the charger in a dry area and avoid exposure to moisture.
- Connection to mains supply is to be in accordance with National wiring rules.
- Disconnect the 240V AC mains supply before making or breaking the connections to the battery.
- Corrosive substances may escape from the battery during charging and damage delicate surfaces. Store and charge in a suitable area.
- Do not touch the battery clamps together when the charger is on.
- Do not operate a charger if it has been exposed to a hard impact, been dropped or otherwise damaged.
- Ensure the charger power cord is positioned so as to prevent it from being stepped on, tripped over or damaged.
- Do not pull out the plug by the cord when unplugging the charger. Pulling on the cord may cause damage to the cord or the plug.
- Do not cover the charger while charging, and make sure that the air inlet and outlet vents are not obstructed.

- Do not leave the charger unattended for long periods of time.
- Ensure vehicle engine, ignition and accessories including lights, appliances etc are turned off prior to charging.
- This appliance is not intended for use by young children or any person with
- limited capabilities (mental and physical) unless they have been adequately
- supervised by a responsible person to ensure that they can use the appliance safely.



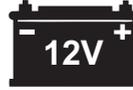
Indoor Use
Only



No Excessive
Dust



No Excessive
Moisture



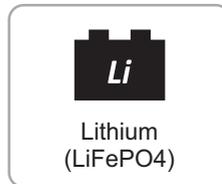
For 12V Rechargeable
Batteries Only

1.3 DIY Repair & Modifications

The charger should not be opened, and any attempt at modification or repair without the consent of Kickass will void any warranty. Please refer to the back of this manual for warranty details. If the AC cord is damaged do not attempt to use the charger and do not attempt to repair by yourself. It must either be replaced or repaired by an authorized professional, as approved by Kickass.

1.4 Supported Battery Types

This charger is only suitable for charging the following 12V battery types:



This charger should not be used to recharge NICAD or any other type of battery that has not been listed in this section.

1.5 Precautions When Working With Batteries

- Do not attempt to charge non-rechargeable batteries.
- Do not attempt to charge frozen batteries.
- Do not attempt to charge a battery that is damaged or seems to be damaged.
- Do not attempt to charge a lithium battery at temperatures below 0°C (32°F).
- Do not attempt to charge a lithium battery that does not have an in built Battery Management System (BMS).
- Do not charge batteries smaller than 15Ah or larger than 300Ah.
- Do not smoke or allow a spark or flame in the vicinity of the battery or engine.

- Do not drop a metal tool on the battery, as it could result in a short circuit and a possible explosion.
- Do not place the charger on top of the battery while charging.
- Avoid getting electrolyte on your skin or clothes. It is extremely corrosive and can cause burns.
- If electrolyte gets into your eyes - wash immediately with water and seek medical attention immediately.

IMPORTANT: This charger has only been designed for charging the batteries as outlined in this manual. Always ensure to refer back to the technical specifications of the battery that you have. Do not use this charger for any purpose other than what has been specified in this manual.

1.6 Verifying Suitability of Batteries

- Always confirm battery manufacturer safety recommendations and technical specifications before charging the batteries with a charger.
- Each battery has a recommended maximum charge voltage. Ensure that the charge voltage of the mode you have selected, does not exceed the battery manufacturers recommendations.
- Each battery has a recommended continuous current rating. Make sure that the charger does not exceed the battery manufacturers recommended maximum charging current.

1.7 Protection Features

Polarity Protection

This unit offers reverse-polarity protection, the RED LED will blink and the charging process will not start. If this happens, unplug immediately from mains, connect the red clamp to positive (+) battery post, and black clamp to negative (-) post, then plug into the mains power and the charging process will start.

Short-circuit protection

Should you accidentally touch the clamps together whilst the mains power is on, the charger will automatically shut down. If this happens, unplug from mains, disconnect and start the operation process again being careful not to touch the clamps together.

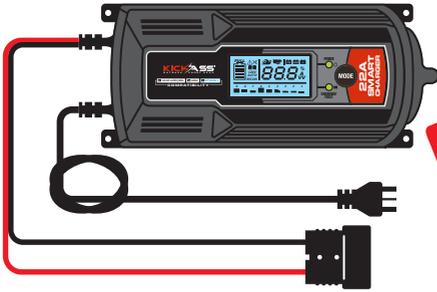
Over Temperature Protection

The charger will reduce the charge current to 2A if the internal temperature reaches 95 degrees celsius protecting both charger and battery.

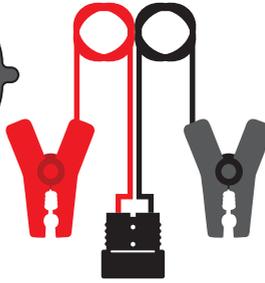
Charge Memory

If the mains AC connection is disconnected for any reason during the charging process, the charger will remember its previous charge settings and will automatically start charging in the same mode once mains AC power is restored, providing the battery clamps have not been disconnected.

2.0 What's Included



1 x KickAss 12V 22Amp smart battery charger



1 x Anderson to alligator adapter lead



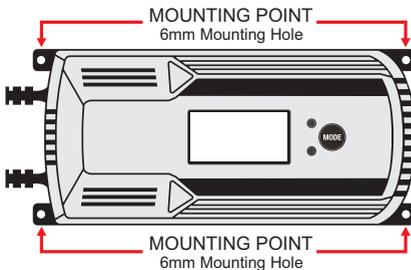
1 x User guide

3.0 Installation and Mounting

1. This charger works with Australian 240V AC mains power outlets and is designed to be used indoors out of areas of excessive dust or moisture.
2. The charger can be used on a flat surface if not mounted or mounted following the instructions below.
3. For caravan and camper installations please ensure all AC and DC wiring complies to the appropriate standards before mounting and installing this charger.
4. Never mount or use this charger on or in close proximity to the batteries.
5. Mounting points - the charger has two mounting point options, permanent and temporary.

A. Permanent Mounting

Use the 4 mounting points and secure with bolts or screws. This mounting is recommended for caravan, camper or in-vehicle set ups.



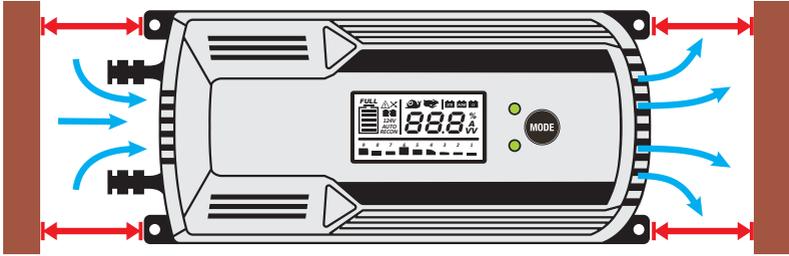
B. Temporary Mounting

Use the mounting hook that can be swung out from the rear of the charger. The hook can be mounted on a suitable and secure holding retainer such as a screw or hanger.



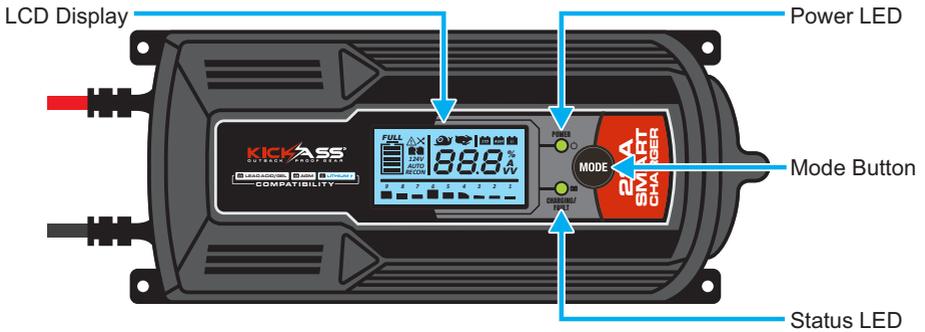
Charger Fan Intake Clearance

Please ensure there is adequate air clearance from both the cooling inlet and outlet for the charger to operate correctly.

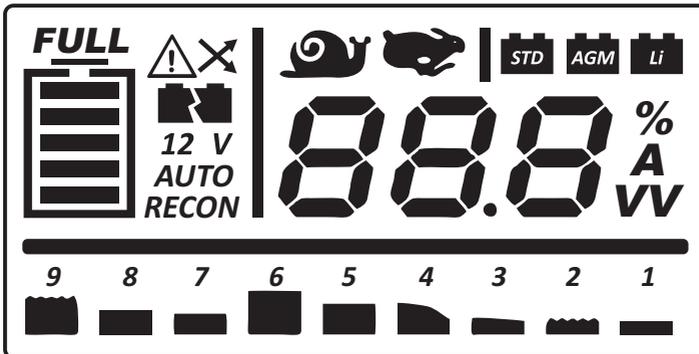


4.0 Product Overview

4.1 Charger Features



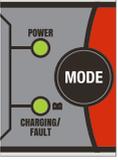
4.2 LCD Display



	Battery Reverse Polarity Connection Indicator
	Wrong Battery Type/ Charging Fail
	Battery Voltage Level Indicator
	Digital Voltage Display
	Slow STD Mode

	Fast STD Mode
	Fast AGM Mode
RECON	AGM Recon Mode
	Slow Lithium Mode
	Fast Lithium Mode

4.3 Indicator LEDs

 <p>Power LED When the Power LED is Green, it indicates the connection of power to the charger.</p>	 <p>Status LED When the Status LED is Green, it indicates that the battery is fully charged.</p>	 <p>When the Status LED is blinking Green, it indicates that the battery is charging.</p>	 <p>When the Status LED is Red, it indicates that there is a charging failure, a battery problem or reverse polarity scenario.</p>
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4.4 Supported Rechargeable Batteries

The battery types that our charger supports include:

	AGM (Absorbed Glass Matt)
	GEL
	SLA & FLA (Sealed & Flooded Lead Acid)
	LiFePO4 (Lithium Iron Phosphate)

Note 1: The STD Mode in the charger caters for GEL and Lead Acid Batteries.

Note 2: The AGM Mode in the charger caters for AGM Batteries.

Note 3: The Li Mode in the charger caters for LiFePO4 Batteries.

5.0 Standard Charging Modes and Operation

5.1 Standard Charging Modes

The Mode button is used to select the different battery charger modes as shown below. The mode should be selected within 10 seconds of connecting the AC mains before the charger starts charging.



Slow STD Mode

Slow charge with 12V sealed or flooded lead acid or GEL battery, MAX 4A.



Fast STD Mode

Fast charge with 12V sealed or flooded lead acid or GEL battery, Max 22A.



Fast AGM Mode

Fast charge with 12V AGM type lead acid battery, Max 22A.



AGM Recon Mode

This reconditioning mode is for batteries that haven't been used for a long period of time or have gone through a deep discharge which may have degraded the battery performance. This mode is only for 12V AGM batteries with 22A Max charge current capacity.

Caution: Recondition mode may decrease the battery life so consult your battery vendor for advice if necessary when using this mode



Slow Lithium

Slow charge with 12V LiFePO4 battery, Max 7A.



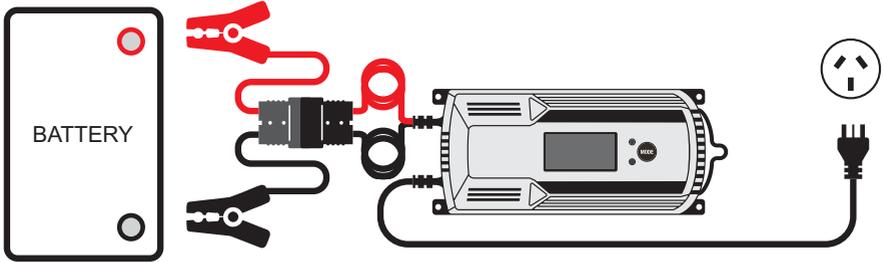
Fast Lithium

Fast charge with 12V LiFePO4 battery, Max 22A.

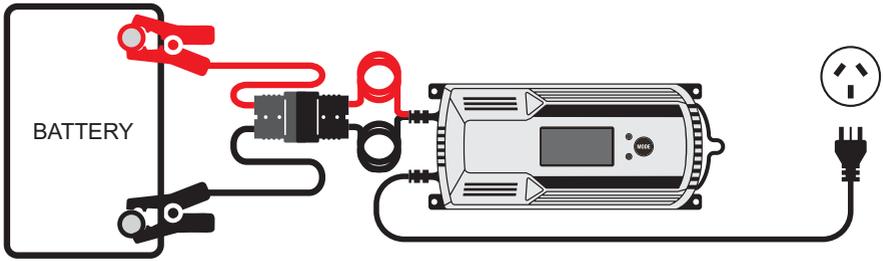
5.2 Standard Operation

To connect the charger to the battery and begin the charging process, please ensure the following procedure is followed.

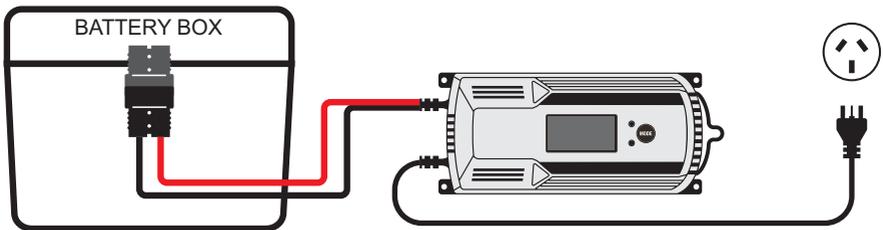
STEP 1 Ensure that the 240V AC Mains is disconnected.



STEP 2A When connecting using the alligator clamps, ensure it is connected via the anderson connector to the charger. Then Connect the POSTIVE + (Red) clamp of the charger to the POSITIVE + terminal on the battery post and the NEGATIVE - (black) clamp of the charger to the NEGATIVE - terminal on the battery post.

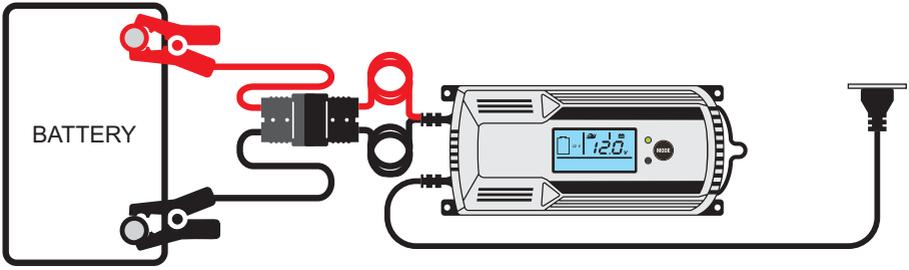


STEP 2B When connecting directly by the anderson connector, plug it into the mating anderson connector charge port of a battery box or other device with anderson charging input ensuring correct polarity.



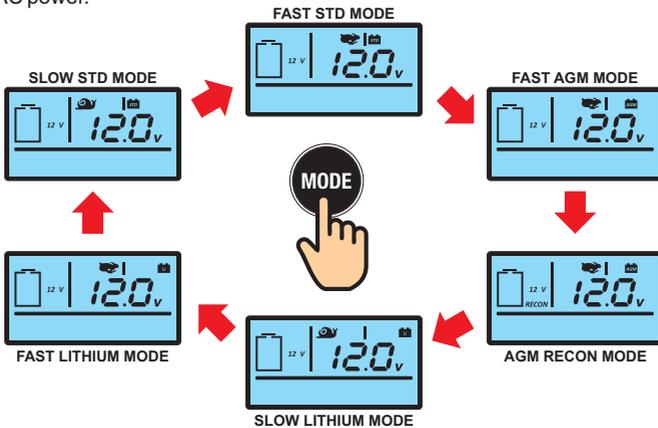
STEP 3

Plug in the 240V AC mains plug and switch on at the wall, the charger's display will then operate and show the battery voltage. Illustration voltage for reference only.



STEP 4

Select the appropriate charge mode as described above ensuring it is correct for the battery type connected. The charge mode should be selected within 10 seconds of connecting the 240V AC power.



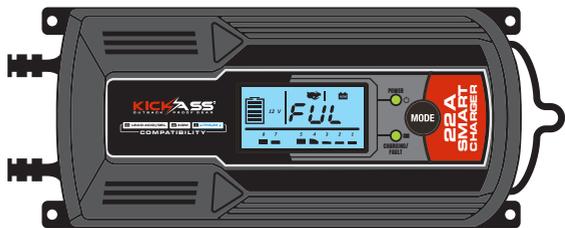
STEP 5

After 10 seconds, the charger will begin charging, the green status light should flash and the appropriate charge stage will display in the LCD.



STEP 6

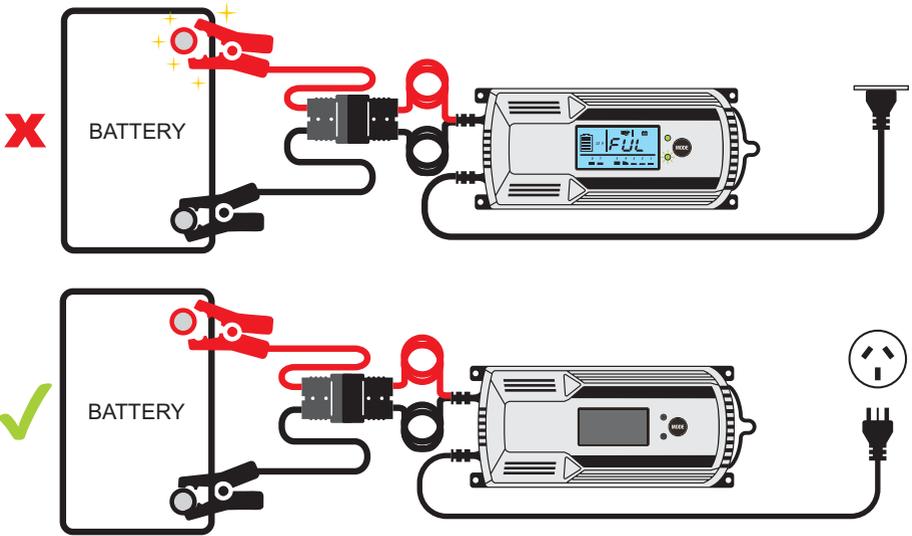
Once the charge process has completed the green status light will remain solid on and the LCD will display full as below.



STEP
7

If the battery needs to be disconnected, the safest way to do so is to ensure that the 240V AC mains is disconnected before removing the alligator clamps or Anderson connection to the battery. This will avoid any undesirable sparks from forming.

NOTE: Disconnecting the alligator clips from the battery while the charger is powered, may create sparks.



6.0 Special Modes and Operation

6.1 Lithium Activation Mode

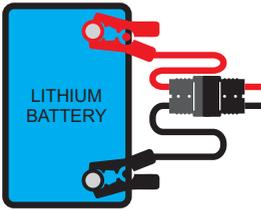
All Lithium batteries have a Battery Management System (BMS) built into the battery packs to protect them from unsafe operating conditions. One of these conditions is Under Voltage Protection, which occurs when the batteries are depleted below a certain voltage. When a battery pack reaches this protection mode the BMS does not allow the battery to be discharged any further in order to protect the cells from being damaged. Some BMS's, while in this protection mode, may disconnect the external battery terminals from the internal cells. This can create problems for some chargers, because they expect to see a voltage at the battery terminals, before they can start charging.



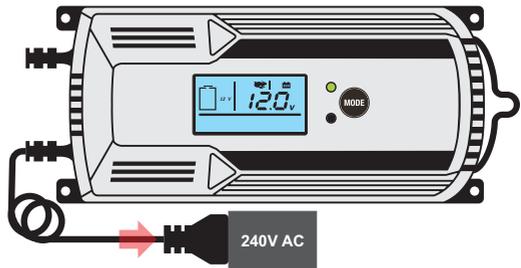
Our Lithium Battery Activation Mode lets our charger know that the battery being charged is in this Under Voltage Protection Mode.

To activate Lithium Battery Activation Mode do the following:

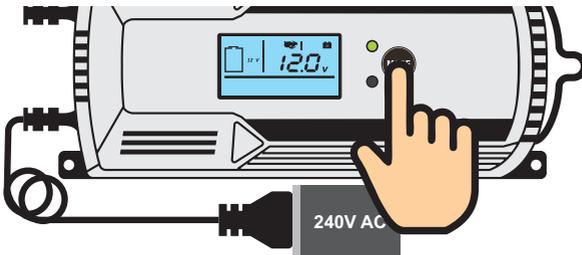
- STEP 1** Connect the alligator clips to the battery in protection mode



- STEP 2** Plug the charger into a 240V AC power point.

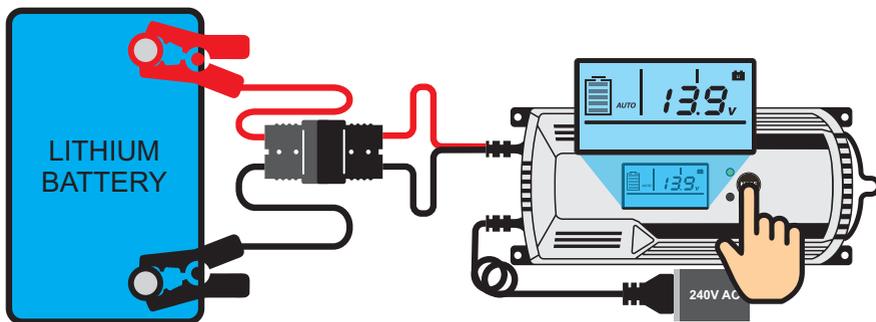


- STEP 3** Select Lithium Mode. (within 10 seconds of powering up the charger)



STEP
4

Press and hold the Mode button for more than 4 seconds. The charger will enter Lithium Activation mode.



In this mode, the output voltage will be a constant 13.9V supplying 22A. On the display screen AUTO will be on and the Battery Icon on the left hand side will be blinking. The charger will stay in Lithium Activation Mode for 10 minutes, after which time the charger will have reactivated the BMS to allow normal charging of the battery.

NOTE: Lithium Activation Mode is not accessible while in AGM or STD charging modes.

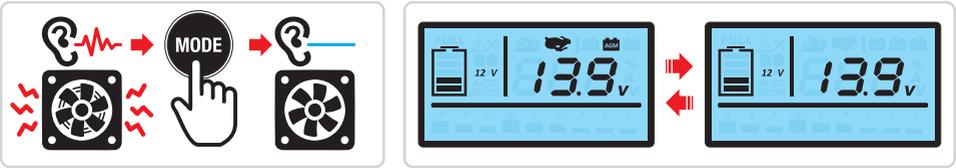
NOTE: The charger can exit this mode prior to the 10 minute time limit, by pressing the Mode button for 4 seconds again.

NOTE: Some batteries do have a voltage on the terminals in Under Voltage Protection mode, in which case this Activation Mode will not be required.

6.2 Quiet Night Mode

When charging a battery at high current, the charger fan turns on to cool the unit down. This can at times be undesirable, especially when trying to get some sleep at your campsite. While charging a battery (after pre-charging period), holding the mode button for 4 seconds will make the charger go into Quiet Night Mode, which lowers the output current to 5A, and at the same time turns off the fan. This mode can be activated from any charge setting.

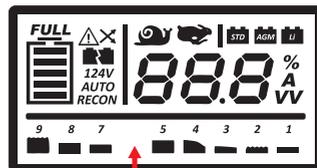
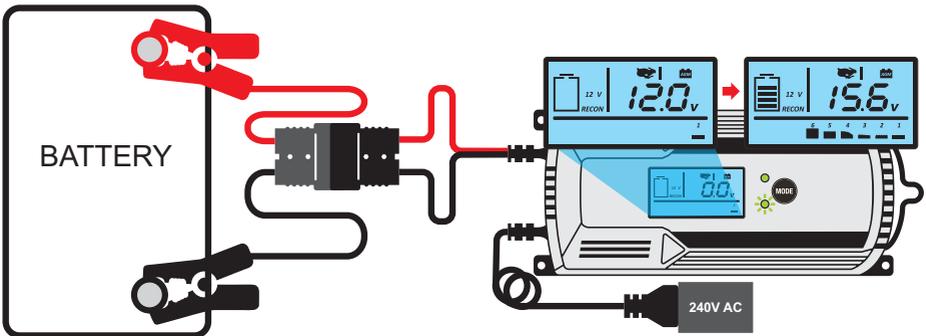
When activated the charging mode icons will flash while in this mode. For example, if the charger is in fast AGM mode before entering Quiet Night Mode, the fast AGM mode icons will start flashing once the charger goes into Quiet Night Mode. The original AGM fast Charging mode will be remembered.



6.3 Recondition Mode

Recondition mode can be used on AGM batteries only to give the battery a specialised charge if the battery has not been used in some time. We recommend you consult your battery manual or vendor when using Recondition mode as it can shorten battery life.

Recondition mode is selected using the standard selection via the mode button as described above. Note that in recondition mode the charge stage will stop at stage 6 as shown below. Once the display reaches this stage the recondition mode has finished.



Note: that #6 (RECON) only appears while in AGM (RECON) mode.

7.0 Battery Type & Capacity

This charger is suitable for 12V Normal Lead Acid, Sealed, Gel and 12V LiFePO4 Batteries between 15-300Ah.

Charging Mode	Max Charging Current	Recommended Battery Capacity
STD Slow Mode	4A	10-50AH
STD Fast Mode	22A	44-300AH
AGM Fast Mode	22A	44-300AH
Lithium Slow Mode	7A	15-100AH (Related to battery's BMS setting)
Lithium Fast Mode	22A	44-300AH (Related to battery's BMS setting)
Lithium Activation Mode	22A	44-300AH (Related to battery's BMS setting)

8.0 Charging Profile

This model is controlled by a microprocessor with 9-stage charging profiles for charging batteries.

The microprocessor senses the condition of the battery to provide the right current and voltage to the battery (charging profile). This will provide the best effect on charging and protect the health of the batteries.

1

Battery Diagnostic and Precharge (Stage 1):

Check the battery voltage to make sure battery connections are good and the battery is in a stable condition before starting charging the battery.

2

Desulphation (Stage2):

Detects sulfated batteries. Pulsing current and voltage (1" charge and 0.5" discharge), removes sulfate from the lead plates of the battery restoring the battery capacity.

If the change of battery voltage exceeds the voltage setting during charging and discharging, it enters the next stage 4 hours later; if the change is less than 3V, it enters the next stage without desulphurization repair (in about 10 seconds).

Only for STD/AGM batteries.

3**Soft Start (Stage 3):**

Initial battery test to determine battery condition. If the battery is severely discharged, the charger will begin the Soft Start stage. Charging starts with reduced current until battery voltage reaches a normal condition for charge.

4**Bulk (Stage 4):**

Major charging stage where the battery receives the majority of its capacity. The charger delivers maximum current until the terminal voltage has risen to the full charge level for normal battery.

5**Absorption (Stage 5):**

Completes the charge up to virtually 100% at a constant voltage. The current tapers off after the current reaches the minimum level.

6**Recondition (Stage 6):**

Select Recondition mode, charged by higher voltage to recondition the sulfate of the AGM battery to extend battery life. This stage is available only for AGM batteries.

7**Analysis (Stage 7):**

Test if the battery can hold capacity.

8**Float (Stage 8):**

Low constant voltage with minimum charge current, after the battery is fully charged.

In AGM mode, the charger will transfer from stage 8 to stage 1 when battery voltage is less than 12.8V.

In Lithium mode, the charger will transfer from stage 8 to stage 1 when battery voltage is less than 13.1V.

9**Pulse (Stage 9):**

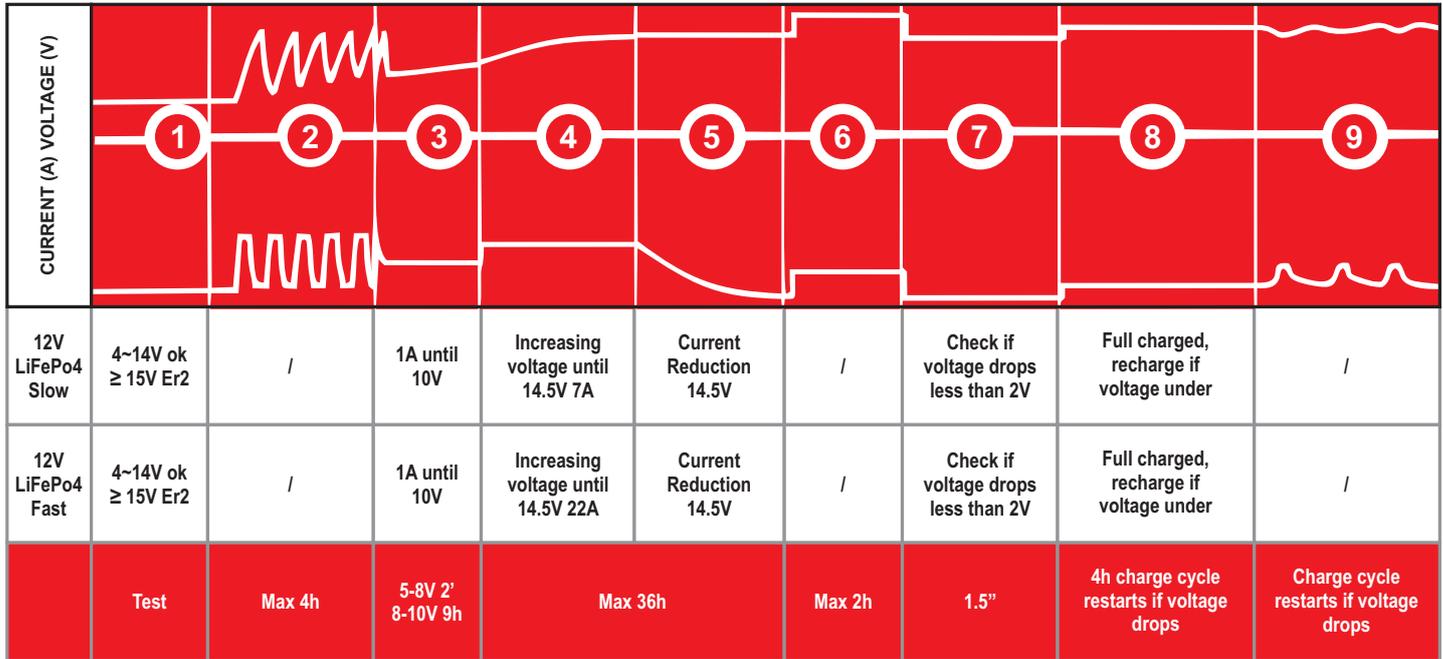
Maintain the battery at 95-100% capacity. The charger monitors the battery voltage and gives a pulse when necessary to keep the battery fully charged.

Only for STD/AGM batteries.

12V Standard / Gel / AGM Batteries

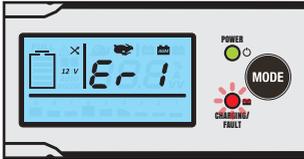
12V SLOW	4~14V ok ≥ 15V Er2	2A until voltage drops less than 2V	1A until 10V	Increasing voltage until 14V 4A	Current Reduction 14.4V	/	Check if voltage drops less than 2V	13.10-14.2h	13.0-14.4
12V GEL FAST	4~14V ok ≥ 15V Er2	2A until voltage drops less than 2V	1A until 10V	Increasing voltage until 14V 22A	Current Reduction 14.4V	/	Check if voltage drops less than 2V	13.10-14.2h	13.0-14.4
12V AGM FAST	4~14V ok ≥ 15V Er2	2A until voltage drops less than 2V	1A until 10V	Increasing voltage until 14V 22A	Current Reduction 14.7V	/	Check if voltage drops less than 2V	13.10-14.2h	13.0-14.7
12V RECON	4~14V ok ≥ 15V Er2	2A until voltage drops less than 2V	1A until 10V	Increasing voltage until 14V 22A	Current Reduction 14.7V	Max 15.7V, 2A	Check if voltage drops less than 2V	13.10-14.2h	13.0-14.7
	Test	Max 4h	5-8V 2' 8-10V 9h	Max 36h	Max 2h	1.5"	4h charge cycle restarts if voltage drops	Charge cycle restarts if voltage drops	

12V LifePo4 Batteries

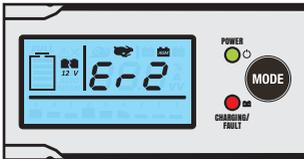


9.0 Charger Error Codes

If Red LED indicator lights up or blinks and LCD display icons   illuminate, the following occurs:



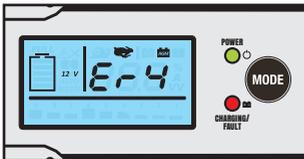
Er1 - Red LED Flash : Reverse polarity error
- During diagnostics stage 1



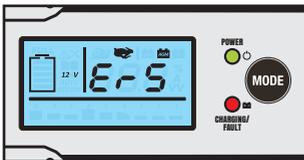
Er2 - Red LED Solid : Faulty battery condition
Battery voltage is $\geq 15\text{v}$
- During diagnostics stage 1



Er3 - Red LED Slow Blink: Fault code during initial charge step. Battery voltage doesn't reach a normal condition for charging.
- During initial soft start stage 3



Er4 - Red LED Solid : Battery voltage variance exceeds 2v after pulse current test. Battery not holding charge / wont charge.
- During analysis stage 7



Er5 - Red LED Solid : Pulse current voltage exceeds 2v. Battery not holding charge / wont charge.
- During desulphation stage 2

10.0 Specifications

Product technical specification			
No.	Description	Test Conditions	Specifications
1	Input voltage/frequency	220~240VAC/50Hz	220~240VAC/50Hz
2	No-load power consumption	Measure at 230VAC	$\leq 3.5W$
3	Maximum input current/power	Measure at 230VAC	$\leq 2A/410W$
4	Efficiency	Measure at 230VAC under full load	$\geq 75\%$
5	Power Factor	Measure at 230VAC under full load	≥ 0.91
6	Charging Current	Fast mode	22A
7	Protection level		IP20
8	Operating temperature		-10-40°C
9	Weight		1.55KG

THANK YOU FOR CHOOSING



KickAss® is committed to providing you with the most up to date product information. As printed material is harder to update we have created an online user guide portal including videos, user guides and product tips so you can view or download the latest product information at any time. This also helps to save our environment which we are committed to just as much as we are committed to our customer service.



ONLINE USER GUIDES

To get started with this product, please visit
USERGUIDES.KICKASS.COM.AU
and search for your SKU code



SCAN QR CODE

OUR GUARANTEE

This KickAss® product comes with a 1 year warranty for your peace of mind. In the unlikely event this product fails when used according to our user guide, we will either repair or replace it. For full warranty terms and conditions on this product, please see the user guide at:
userguides.kickass.com.au

KICKASS PRODUCT QUALITY

In Australia, 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.

Warranty does not cover products that have not been used in accordance with the KickAss® user guide or are outside the warranty terms and conditions.