HARDKORR™

USER MANUAL



DC-DC CHARGER RANGE
WITH MPPT SOLAR REGULATOR

- HKPDCDC25UB
- HKPDCDC40UB

V1.0 - 8.2023

CONGRATULATIONS ON PURCHASING THIS HIGH QUALITY **HARDKORR PRODUCT!**

In doing so, you now have the assurance and peace of mind that comes from purchasing a product manufactured to the highest quality standards.

Our aim is for you to be completely satisfied with your purchase, and therefore your new Hardkorr product is backed by a comprehensive warranty and an outstanding after-sales customer service team.

We hope you will enjoy using this product for many years to come.

If you require technical support, or in the unlikely event your purchase appears to be faulty, please contact our support team for immediate assistance. Contact details for each country are contained within this user guide.

- THE HARDKORR TEAM

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DISCLAIMER

While caution has been taken to ensure the accuracy of the contents of this guide, Hardkorr assumes no responsibility for errors or omissions. Please note that specifications and product functionality may change without notice.

For assistance with assembly or installation, parts and service, please visit **www.hardkorr.com** or contact customer service through the following:

Toll Free:
1800 533 544

Monday - Friday
9AM - 4PM (AEST)

Language spoken: English
support@hardkorr.com

1 SAFETY INSTRUCTIONS

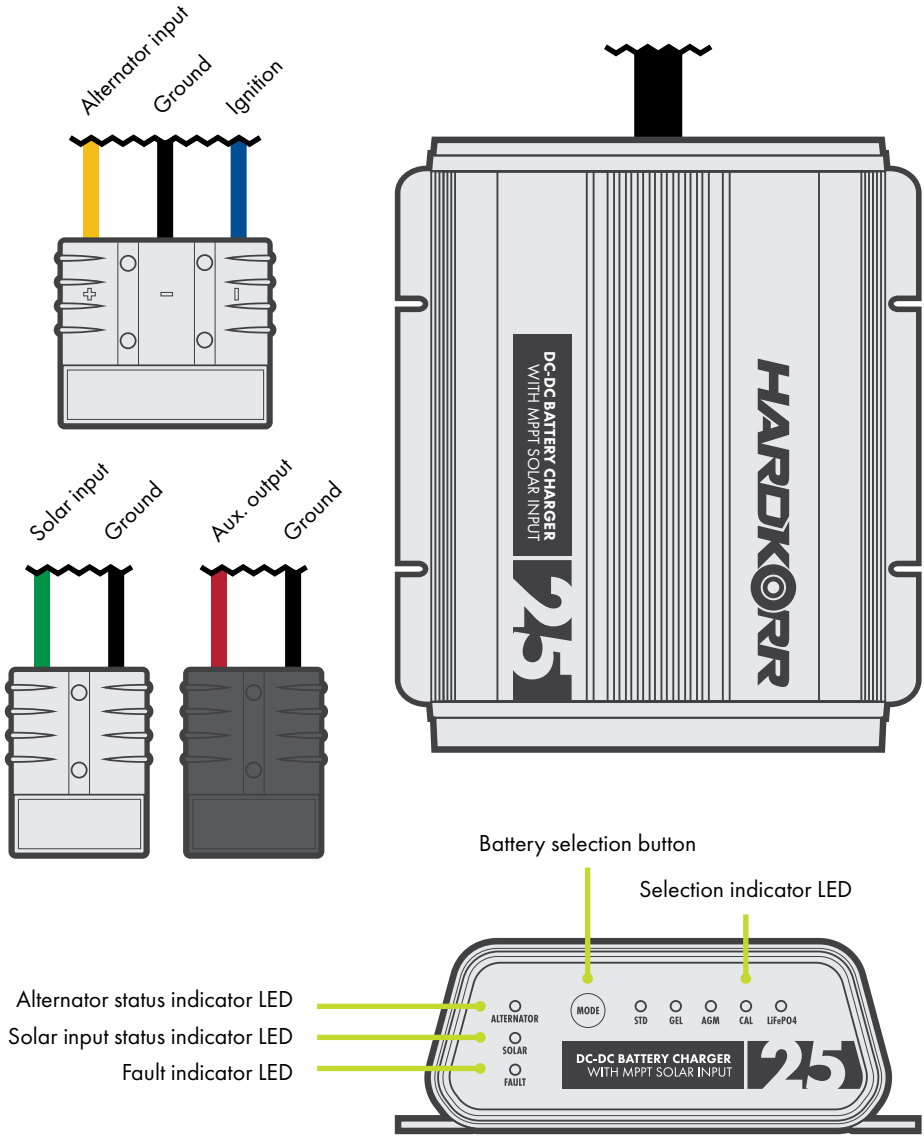
IMPORTANT, RETAIN FOR FUTURE REFERENCE: READ CAREFULLY

Do not operate or install this charger without first reading and understanding this manual. Failure to follow the information in this manual may result in injury, damage, and/or a charger failure or reduced charger/battery life. Hardkorr is not responsible for incidents caused by the charger when it is used incorrectly or not for its intended purpose, as outlined in this user manual.

- Children, those without the proper training or experience, or those under the influence of drugs or alcohol should not operate this unit.
- Before installing or using the product, ensure you have read and understood all of the warning and safety messages supplied with your product.
- Do not use or store this charger near heat sources such as fire or heaters or expose it to flammable chemicals, vapors or corrosive gasses.
- Do not subject the device to impact.
- Inadequate ventilation may lead to overheating and inefficient charging.
- This product should be firmly fastened to prevent it from falling.
- Disassembling the charger could potentially cause harm to yourself or others and damage the unit. Doing so will void the warranty.
- Disconnect the charger before maintenance or cleaning.
- This DC-DC charger should only be repaired by a suitably qualified professional.
- Wear proper eye protection and avoid touching your eyes while working with batteries.
- Avoid dropping any metal tool or object on the battery. Doing so could create a spark or short circuit.
- Examine the battery charger periodically for damage. If the battery charger is damaged, it must not be used until it has been repaired.

PRODUCT OVERVIEW

Layout applies to both HKPDCDC40UB and HKPDCDC25UB (shown)



3 SPECIFICATIONS

SPECIFICATIONS	HKPDCDC25UB	HKPDCDC40UB
VEHICLE INPUT VOLTAGE	9-32V	
SOLAR INPUT VOLTAGE	10-32V	
MAX. INPUT CURRENT	30A	47A
MAX. OUTPUT CURRENT	25A	40A
INPUT/OUTPUT FUSE RATING	40A	60A
MINIMUM START VOLTAGE	4.0V DC (0.0V for $LiFePO_4$)	
STANDBY CURRENT	<15mA	
BATTERY TYPE COMPATIBILITY	12V SLA (STD), AGM, Gel, Calcium, $LiFePO_4$	
OPERATING TEMPERATURE	-20°C – 80°C	
IP RATING	IP66	
DIMENSIONS (MM)	145 (L) x 129.3 (W) x 46.4 (D)	183 (L) x 129.3 (W) x 46.4 (D)
CERTIFICATIONS	IEC/EN 61000-6-1	

CHARGE CONTROL (25/40)	SLA (STD)	Gel	AGM	Calcium	LiFePO4
CHARGE TYPE	3 Stage				
MAX. VOLTAGE	14.4V	14.1V	14.7V	15.3V	14.5V
FLOAT VOLTAGE	13.4V	13.5V	13.4V	13.6V	13.6V

INSTALLATION

- The charger is designed for a variety of installation environments, including the chassis, engine bay, inside the vehicle and in a canopy setup. If installed on the chassis, do not mount in an area exposed to potential impacts.
- The charger can be installed in any orientation.
- The charger can be installed in the engine bay, but for higher charging efficiency, it is recommended that the charger is installed as close as possible to the auxilliary battery.
- We recommend installing a 40 /60 Amp circuit breaker (depends on model selected, not included in this package) between the unit and the starter battery.
- Before operating the unit, check whether all connections are clean and tight.

IMPORTANT

Please check the below table with suggested wire gauges. You can use wires equal to or larger than below.

	<5m	<10m
SOLAR (GREEN)	8AWG	6AWG
ALTERNATOR (YELLOW)		
OUTPUT (RED)		
GROUND (BLACK)		
IGNITION (BLUE)	20AWG	

It is important that any extended wire is connected firmly and cleanly. Strong circuit connections ensure a stable and reliable operation of the charger. We recommend the use of an appropriate method of connection like a butt splice connector, insulated with heat shrink tubing.

WIRING

IMPORTANT

Before you begin, ensure the car is turned off and the negative pole of the starter battery is disconnected. Doing so may result in resetting some data memory. Note any vehicle or device anti-theft codes that may be reset due to battery disconnection.

1. Connect the **OUTPUT (RED/BLACK)** Anderson plug to the auxilliary battery
2. Connect the **ALTERNATOR (YELLOW/BLACK/BLUE)** 3-pin Anderson plug to the starter battery. **NOTE:** The **IGNITION (BLUE)** wire's function is dependent on the type of alternator present in the vehicle. If the vehicle uses a standard alternator, this wire can remain disconnected. If the vehicle uses a smart alternator, the wire can be connected to a switched ignition source (a point at which 12V is supplied to vehicle systems when the key is in the **ON** position and disconnects when the key is in the **OFF** position) found commonly in the vehicle's fuse box.
3. Connect the **SOLAR (GREEN/BLACK)** Anderson plug to a solar panel directly. Do not pass power through an additional solar regulator.
4. Reconnect the negative connection of the starter battery. The charger should start working.

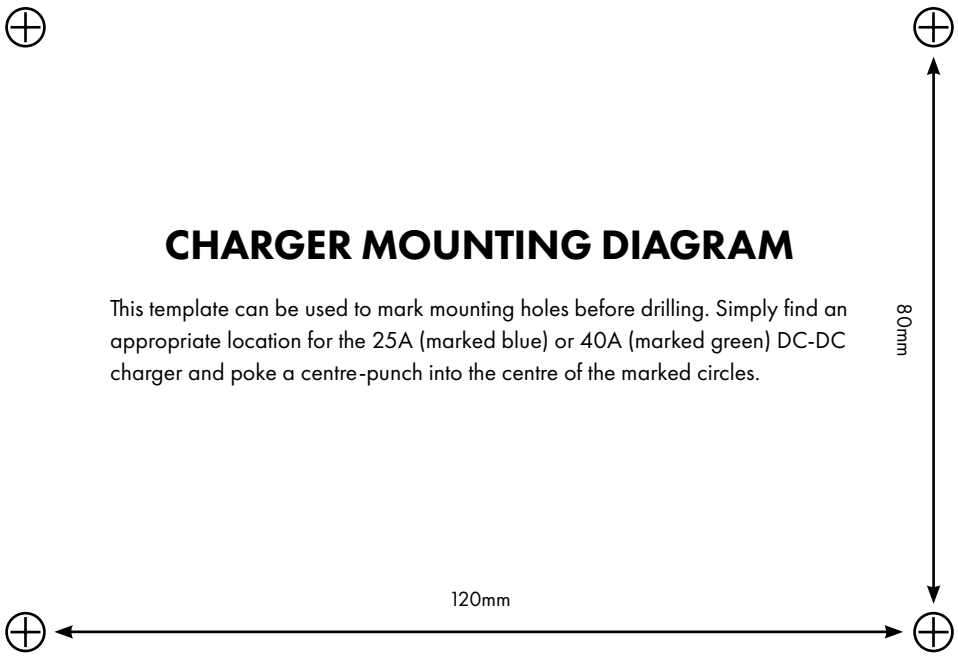
FUSE SPECIFICATIONS

It is recommended that fuses be fitted as close to the power source as possible. Bolt-down fuses are preferred over blade-type fuses for their lower resistance. The table below covers recommended fuse amperage for each wire.

	25A	40A
SOLAR (GREEN)	30-40A (200W solar array)	60-70A (400W solar array) 30-40A (200W solar array)
ALTERNATOR (YELLOW)	30-40A	60-70A
OUTPUT (RED)	30-40A	60-70A
IGNITION (BLUE)	5A	

CHARGER MOUNTING DIAGRAM

This template can be used to mark mounting holes before drilling. Simply find an appropriate location for the 25A (marked blue) or 40A (marked green) DC-DC charger and poke a centre-punch into the centre of the marked circles.



BATTERY CHARGING PROFILE

To change the battery charging profile, press and hold the "MODE" button for 3 seconds and then release. The battery type LED will switch to the next battery type to the right. It may take up to 2 minutes for changes to take effect and the unit to begin charging.

BASIC OPERATION

When the DC-DC charger is connected, all LED indicators may light up. This is normal and means that the charger is initialising. The charger will go into standby if the input voltage is below the cut off voltage. This is indicated by the charge input and battery type indicator LEDs blinking momentarily at the same time. Once the input voltage has risen above the cut off voltage, the charger will wake up within 2 minutes and commence charging.

The charger will start to charge from solar input if the panel supply voltage is above 16V and outputting at least 15W/30W depending on your model.

OPERATING MODE (BOTH MODELS)

INPUT	Turn on	Turn off
12V / 24V STANDARD ALTERNATOR	>13.2V / >26.2V	<12.8V / <25.6V
12V / 24V SMART ALTERNATOR	>12.0V / >24.0V	<11.8V / <23.6V

LED CHARGE INDICATOR

ALTERNATOR/SOLAR LED	**BATTERY TYPE LED**	**CHARGING STAGE**
SHORT FLASH (~1 FLASH PER SECOND)	Solid green	Bulk or Absorption
LONG FLASH (~1 FLASH PER 2 SECONDS)	Solid green	Float

LED INDICATOR WARNINGS

ALTERNATOR (GREEN)	SOLAR (GREEN)	BATTERY TYPE (GREEN)	FAULT (RED)	ISSUE	SOLUTION
QUICK FLASH	OFF	QUICK FLASH	OFF	Low voltage detected at alternator input	Check alternator input voltage
OFF	QUICK FLASH	QUICK FLASH	OFF	Low voltage detected at solar input	Check solar input voltage
QUICK FLASH	QUICK FLASH	QUICK FLASH	OFF	Low voltage detected at alternator and solar input	Check voltage of both alternator and solar input
QUICK FLASH	OFF	OFF	QUICK FLASH	High voltage detected at solar input	Check solar input voltage
OFF	QUICK FLASH	OFF	QUICK FLASH	High voltage detected at output	Check auxilliary battery voltage
OFF	OFF	QUICK FLASH	QUICK FLASH	Over temperature	Let the unit cool down or seek better ventilation

WARRANTY INFORMATION

HARDKORR

2 YEAR WARRANTY

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.

Hardkorr warrants that this product will be free from defects in material and workmanship for two years. The warranty commences on the date of purchase by the original purchaser, and is not transferable. To access the benefits of this warranty, you must retain your proof of purchase and follow any other direction we reasonably give you (e.g. completing and returning your warranty card if applicable).

TO BEGIN A WARRANTY CLAIM:

If you believe your Hardkorr product is defective, it must be returned to Hardkorr for inspection by our warranty claims department.

1. You must have a Return Authorization (RA) number. To get your RA number, please complete the form found on our website and wait for the warranty team to contact you.
2. Once you have an RA number, you must arrange for the product must be shipped at your own expense back to Hardkorr (keep your receipt). The address for shipment will be provided when we issue your RA number.
3. Please be sure that your RA number is clearly marked on the outside of the packaging used for shipping.

Completing the steps as mentioned will ensure a faster process of your claim, so that Hardkorr can get your product back to you as soon as possible.

Once we receive your returned product, our technicians will inspect it. We will then notify you of the outcome of your claim.

If we accept your warranty claim, we will either repair, replace or refund the goods at our discretion. We will also reimburse you for the shipping costs you incurred in sending the goods back to us. Any products that we choose to replace or refund become the property of Hardkorr.

If we do not accept your claim, we will advise you of the reason and hold your product for collection. You will need to arrange and pay for the product to be shipped back to you. If your product is not collected within 30 days of your warranty claim being finalised, we may destroy it.

Your warranty is voided if we (at our sole discretion) determine that there is evidence of one or more of the following:

Negligence: Improper installation, improper or extreme use, use that contravenes this instruction manual, etc.

Abuse: Road hazards, Damage beyond the limits of "normal wear and tear."

Unauthorised Repair: Repair service performed by an unauthorised service centre.

Disassembly: Any attempt to open, tamper with or otherwise compromise the integrity of the product.

Consequential damage: Damage to this product caused by the failure of another component of the vehicle or device in which this product is installed.

Additionally, in the case of battery products: the following will void your warranty:

Incorrect charger: The use of a battery charger that is not suitable for lithium batteries i.e. does not have a lithium battery charge profile.

Under bonnet use: Using this battery under the bonnet of a vehicle.

Overcharge/over-discharge: Charging or discharging your battery at a rate higher than those stipulated in the Specifications table of this instruction manual.

Water ingress: your battery is not designed to be installed in an area that is subject to water ingress.

It is reasonable to expect that over its service life the capacity of your battery will reduce. Natural capacity decrease, which we define as a decrease in capacity of less than 10% per year of ownership, is not covered by this warranty. All batteries are tested using our in-house equipment and if we decline your claim for capacity decrease we will provide you with a copy of the test report.

Exterior Finish: Hardkorr uses the highest quality materials available, but depending on location, environment and exposure, the colour of exterior surfaces can fade. We will not approve any warranty claims that relate to fade.

DISCONTINUED ITEMS

Discontinued items that are still under warranty will be reviewed by Hardkorr. If a discontinued item is covered under warranty it may be replaced by an equivalent or superior item. If an equivalent item is not available Hardkorr will determine terms of resolution on a case-by-case basis.

LIFE WITHOUT LIMITS

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