

# HARDKORR



## 8A / 12V SOLAR CHARGE CONTROLLER

v1.0.0 - November 2021

### INSTRUCTION MANUAL



**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 that has been 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 2-year 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.

General Information and Safety Instructions .....	4-6
Overview .....	7
Installation & Dimensions .....	8
Specifications.....	9-10
Warranty .....	11

Hardkorr 8A PWM solar charge controllers offer unrivalled quality, durability and value for money. They are simple to operate without sacrificing features or functionality.

These controllers ensure that the power generated from your solar panels is at the right voltage to charge your auxilliary batteries. They have an advanced 5-stage charging algorithm, and contain specific charge programs for a range of batteries including AGM, Wet, Gel and Lithium.

Their rugged, high-quality construction means they are also IP65 rated, so will not be damaged by exposure to dust and rain. With a host of electronic protection circuitry including reverse discharge protection and over-temperature protection, it will ensure your batteries are charged optimally and protected from damage.

**PLEASE KEEP THIS MANUAL FOR FUTURE REFERENCE**

This manual contains important safety instructions for your 8amp PWM solar controller.

Do not operate the solar controller until you have thoroughly read and understood this user manual.

**WARNINGS**

**RISK OF FIRE, EXPLOSION AND BURNS:** Working in the vicinity of lead acid batteries is dangerous. Explosive gases can develop during normal battery operation. Be certain there is enough ventilation to release the gasses. **DO NOT** smoke when in the vicinity of the battery under charge.

**ENSURE** the red is connected to the positive terminal and the black is connected to the negative terminal if using clamps to connect to your battery. Connecting to the wrong terminals may burn out the regulator.

**DO NOT** use the controller to charge non-rechargeable batteries; this may result in harm to the user and/or damage to the equipment.

**CHECK** the manufacturer's data for your battery and ensure the maximum voltage of the the profile you select does not exceed the recommended maximum charge voltage.

**CONFIRM** that the power wires are tightly connected to avoid excessive heating from a loose connection.

**BE VERY CAREFUL** not to short-circuit the battery connections.

Accidental shorting of the terminals or wiring can result in sparks, causing personal injury or a fire hazard. We recommend that you cover up the panel with a soft cloth during installation of the controller to block all incoming light. This will ensure that no damage is caused to the solar panel or battery if the wires are accidentally short-circuited.

**CAUTION**

The controller should not be used by children or persons with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they are supervised or have been instructed on how to use the appliance by a person responsible for their safety.

DO NOT alter or disassemble the solar controller under any circumstances. Incorrect handling or reassembly may result in a risk of electric shock or fire and may void the unit warranty.

Minimum cable gauge is dependent on the total cable length between the solar panel and battery. Selecting the wrong cable or fuse size could result in harm to the installer or user and/or damage to the battery or other equipment installed in the system. The installer is responsible for ensuring that the correct cable and fuse sizes are used when installing this solar controller.

We recommend the following cable sizes for each total distance:

< 3 metres: 16AWG

3-6 metres: 14AWG

6-9 metres: 12AWG

9-12 metres: 10AWG

ONLY use this solar charge controller for charging 12 volt lithium, wet, gel and AGM batteries.

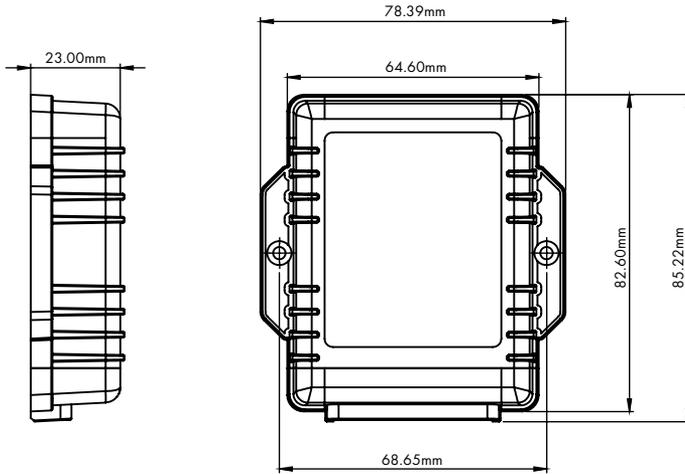
## OVERVIEW

**HARDKORR**



The three LEDs indicate the charge status of the controller and alert to any faults present.

	<b>Fault</b>	<b>Charge</b>	<b>Full</b>
Solar connected, battery not connected	ON	Slow flash	Slow flash
Battery reversed	ON	Fast flash	Fast flash
Solar panel reversed	OFF	OFF	OFF
Soft start charging	OFF	Slow flash	OFF
Bulk, absorption, equalisation charging	OFF	ON	OFF
Float charging	OFF	OFF	ON
Solar panel weak	Slow flash	OFF	OFF
At night, no charge	OFF	OFF	OFF



If you wish to permanently mount the solar charge controller, the easiest way to do so is to use two spacers and self-tapping screws (not supplied). Ensure you mount to a flat surface.

### DIP SWITCH SETTINGS



Battery Type	Charge voltage	Switch 1	Switch 2
AGM	14.4V	OFF	OFF
Gel	14.1V	ON	OFF
Wet	14.7V	OFF	ON
Lithium	14.4V	ON	ON



## SPECIFICATIONS

**HARDKORR**

Rated maximum solar panel current	8A
Normal solar cell array input voltage	15-22V
Lowest operating voltage (solar or battery)	8V
Standby consumption	5mA
Max. voltage drop (solar panel to battery)	0.25V
Minimum battery start charging voltage	3V
Soft start charging voltage / current	3-10V ± 0.2V / max 4A
Bulk charge voltage	10-14V ± 0.2V
Absorption charging voltage @ 25°C:	
- Gel battery	14.1 ± 0.2V
- LiFePO4 battery	14.4 ± 0.2V
- AGM battery	14.4 ± 0.2V
- Wet cell battery	14.7 ± 0.2V
Absorption transitions to equalisation or float when:	
- Charging current drops to	0.5A ± 0.1A
- Total absorption charging time reaches	4 hours
Equalisation charge (Wet cell only) activated when:	
- Battery voltage discharged to less than	10V ± 0.2V
- Time elapsed since last equalisation charge is	28 days
Equalisation charge @ 25°C	15.5V ± 0.2V
Equalisation charge timeout	2 hours
Float charge voltage @ 25°C:	
- LiFePO4 battery	13.4V
- AGM, Gel, Wet battery	13.6V

Materials	ABS plastic
Waterproof rating	IP65
Operating temperature	-25°C to 50°C
Storage temperature	-40°C to 85°C
Operating humidity range	0% to 100%
Net weight	0.3kg
Terminal size	M4
Protection circuits	Reverse polarity, short circuit, reverse current, over-temperature, over-discharge

## WARRANTY

**HARDKORR**

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).



If you believe your Hardkorr product is defective, it must be returned to Hardkorr for inspection by our warranty claims department. Hardkorr will not be liable for any charges you incur relating to installation, repair or removal of Hardkorr products, nor for any costs incurred in returning the product to us.

To begin your warranty claim:

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 back to Hardkorr (except in the case of fridge/freezers, which must be taken to an authorised service agent for examination). The address for shipment is 25 Old Pacific Hwy, Yatala Qld 4207.
3. Please include a copy of your original proof of purchase.
4. Please be sure that your RA number is clearly marked on your documentation as well as on the outside of the packaging used for shipping.

Completing the steps above will ensure faster processing of your claim, so that Hardkorr® can get your product back to you as soon as possible.

If Hardkorr determines, at our sole discretion, that your product is defective in material or workmanship, we will honor your warranty claim. We will determine whether the item is repaired or replaced.

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, etc.
- Abuse: Road hazards, Damage beyond the limits of "normal wear and tear."
- Unauthorized Repair: Repair service performed by an unauthorized service centre.
- Disassembly: Any attempt to open, tamper with or otherwise compromise the integrity of the product.

### Discontinued Items:

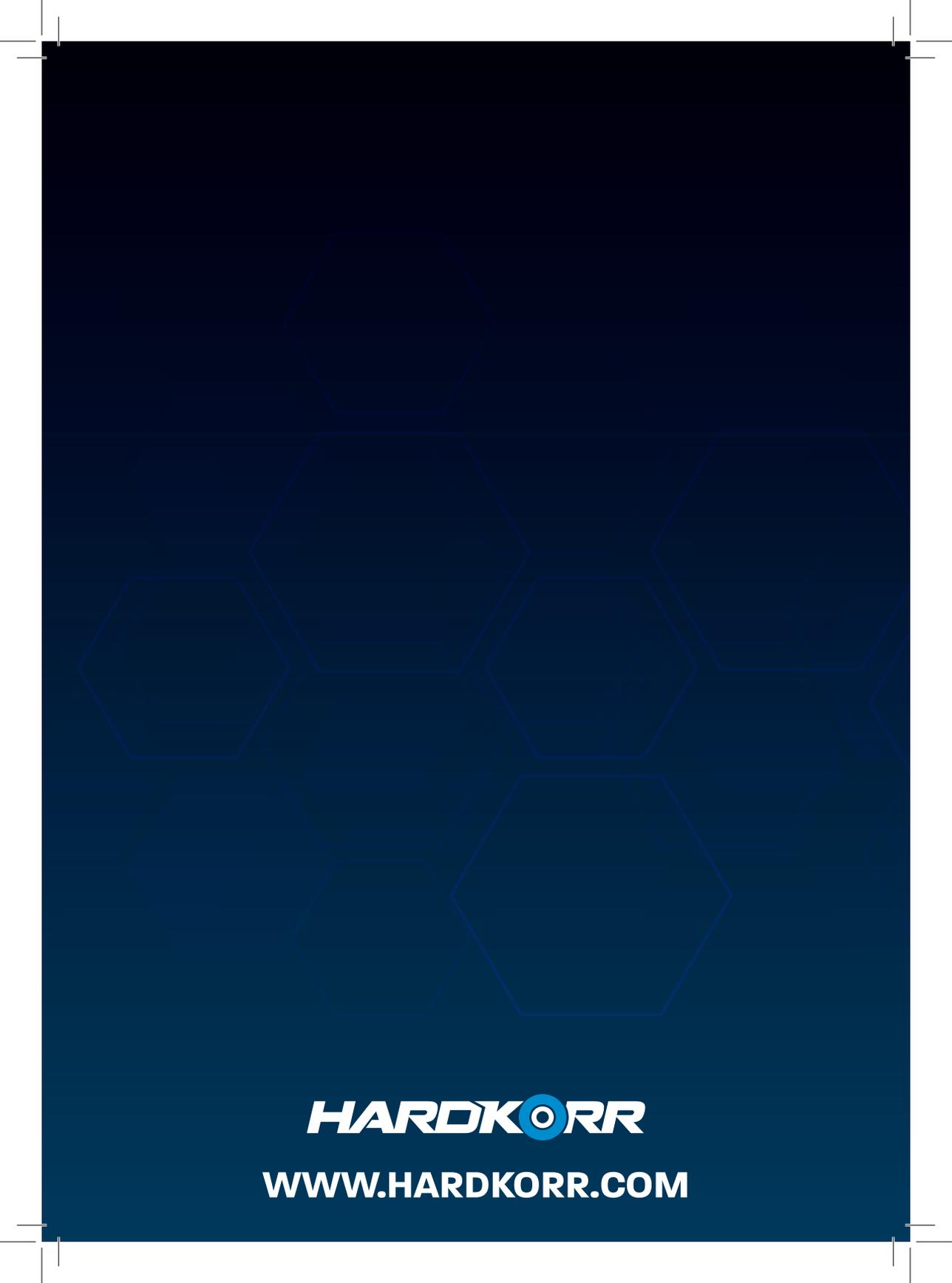
Discontinued items that are still under warranty will be reviewed by Hardkorr®. If a discontinued item is covered under warranty it may be replaced by an equivalent item. If an equivalent item is not available Hardkorr® will determine terms of resolution on a case-by-case basis.

### Exceptions to this Warranty:

**Painted Finish:** Hardkorr uses the highest quality materials available, but depending on location, environment and exposure, painted surfaces can fade. We will not approve any warranty claims that relate to faded paint.

**Damage to Lenses:** Please be aware that certain chemicals cause damage to polycarbonate plastics. Do not use cleaning products that contain any chemicals in the following list: Acetic Acid Aq., Acetone, Ammonium Carbonate Aq., Ammonium Chloride Aq., Benzene, Calcium Hypochlorite, Chloroform, Chromic Acid Aq., Ethyl Acetate, Ethylene, Glycol Aq., Formaldehyde Aq., Citric Acid, Heptane, Hydrofluoric Acid Aq., Lubricating Oils (Petroleum), Methyl Ethyl Ketone, Methyl Chloride, Mineral Oils, Oleic Acid, Ozone, Phosphoric Acid Aq., Toluene, Turpentine, Zinc Chloride Aq.

Hardkorr will not approve any warranty claims for lighting products where we reasonably believe that products have been exposed to any of these chemicals.



**HARDKORR**

**WWW.HARDKORR.COM**