

Part No:
H3500
H3500PLUS



STERLING POWER

Sterling Power Products Portable Power Pack Handbook

HARDY | 3500
HARDY | 3500Plus

EURO 6



UK
CA



RoHS
compliant



www.sterling-power.com
www.sterling-power-usa.com

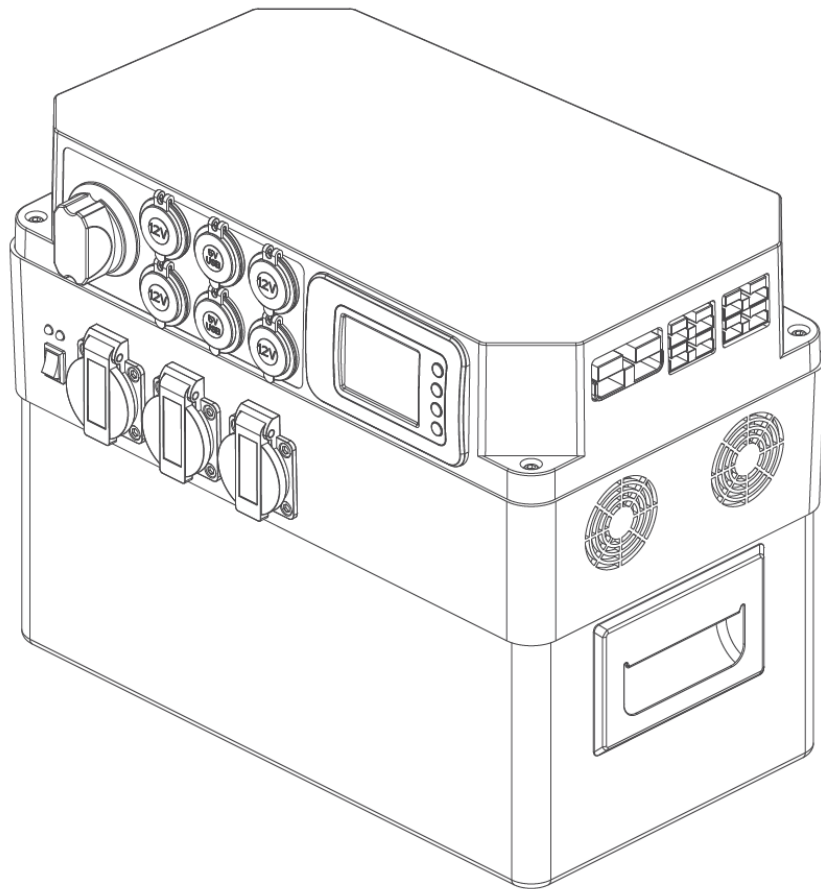
Warranty (2 years return to factory)

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Dimensions drawing
(not to scale)



Dimensions
Weight

420mm x 265mm x 395mm
31kg | 40kg



INTRODUCTION WELCOME

Welcome Welcome to the Sterling Power Products Owners Handbook for the HARDY. The portable power supply.

Please take your time to read and fully understand the contents of this Handbook. These guidelines are developed with your safety and the products performance in mind and failure to follow or understand these guidelines may lead to voiding the product warranty or even leading to damage or injury for you or your setup.

If you are unsure of any step or guideline then please consider reaching out to Sterling via our web contact form or our phone service and we shall offer our support.

Thank you for joining the Sterling family and we hope to serve your travels well.

HARDY The Hardy is a portable power supply designed to store energy for use in both commercial and recreational environments. The Hardy is equipped with a large lithium battery, a large inverter and several means of charging the battery up. There are 2 models. The Hardy and the Hardy+. There specifications are identical, other than the size of the battery.

Product Code Understanding This manual must be read throughout before installing this electronic device. Do not lose these instructions - keep them safe. The most up to date instructions can be found on sterling-power.com. Please refer to the latest instruction manual before contacting Sterling. At Sterling, we endeavour to include all of the product information that we can think of into the manual.

Using this Handbook Installation of the electronic device must be carried out by qualified and trained personnel only. The personnel must be familiar with the locally accepted guidelines and safety measures.

Safety Your safety is Sterling's top priority. Please follow all precautions to keep yourself safe. If you believe your unit requires repair then please contact Sterling or your distributor. Do not attempt to service the unit yourself.

Specifications	H3500	H3500P
Battery capacity	12.8V 150Ah 1920Wh	12.8V 300Ah 3840Wh
Battery chemistry	LiFePO ₄	
BMS current rating	300A	
AC inverter power	3500W 230VAC 50hz	
Quiescent current	3x AC outlets (3500W max)	
DC Outlets	3x USB-C 3x USB-A 3x 12V Cigarette ~150W 2x 50A input / outputs 1x 175A input / outputs 1x 15W wireless charger	
AC charger	100V-250VAC 50-60Hz 40A at 14.6V 600W	
DC DC MPPT	700W up to 90VDC input	
DC DC charger	30A charge 8-33VDC input	
Humidity	10-90%	
Operating Temp	-10 to 50DegC	



SAFETY AND LEGAL LEGAL GUIDELINES

Warranty and Terms

Your 100 % satisfaction is our goal. We realise that every customer and circumstance is unique. If you have a problem, question, or comment please do not hesitate to contact us. We welcome you to contact us even after the warranty and return time has passed.

Each product manufactured by Sterling Power comes with at least a 2 year limited factory warranty. Certain Products have a warranty period of time greater than 2 years. Each product is guaranteed against defects in material or workmanship from the date of purchase. At our discretion, we will repair or replace free of charge any defects in material or workmanship that fall within the warranty period of the Sterling Power product. The following conditions do apply:

- The original receipt or proof of purchase must be submitted to claim warranty. If proof cannot be located a warranty is calculated from the date of manufacture.
- Our warranty covers manufacture and material defects. Damages caused by abuse, neglect, accident, alterations and improper use are not covered under our warranty.
- Warranty is null and void if damage occurs due to negligent repairs.
- Customer is responsible for inbound shipping costs of the product to Sterling Power either in the USA or England.
- Sterling Power will ship the repaired or warranty replacement product back to the purchaser at their cost.

If your order was damaged in transit or arrives with an error, please contact us ASAP so we may take care of the matter promptly and at no expense to you. This only applies for shipping which was undertaken by our company and does not apply for shipping organised by yourself. Please do not throw out any shipping or packaging materials. All returns for any reason will require a proof of purchase with the purchase date. The proof of purchase must be sent with the returned shipment. If you have no proof of purchase call the vendor who supplied you and acquire the appropriate documentation.

To make a claim under warranty, call our customer care check telephone numbers on www.sterling-power.com or www.sterling-power-usa.com. We will make the best effort to repair or replace the product, if found to be defective within the terms of the warranty. Sterling Power will ship the repaired or warranty replacement product back to the purchaser, if purchased from us.

Please review the documentation included with your purchase. Our warranty only covers orders purchased from Sterling Power. We cannot accept warranty claims from any other Sterling Power distributor. Purchase or other acceptance of the product shall be on the condition and agreement that Sterling Power USA LLC and Sterling Power LTD shall not be liable for incidental or consequential damages of any kind. Some states may not allow the exclusion or limitation of consequential damages, so, the above limitations may not apply to you. Additionally, Sterling Power USA and Sterling Power LTD neither assumes nor authorizes any person for any obligation or liability in connection with the sale of this product. This warranty is made in lieu of all other obligations or liabilities. This warranty provides you specific legal rights and you may also have other rights, which vary from state to state. This warranty is in lieu of all other, expressed or implied.

Copyright and Plagiarism

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Liability

Sterling Power can not accept liability for:

- consequential damage due to use of this device
- possible errors in the manuals and the results thereof

Device Modification

Please do not modify the device unless you have been instructed to do so by Sterling Power directly. Product modification shall be done at Sterling when needed. Warranty shall be voided if personal attempts are made to modify the device without Sterling's approval.



STERLING
POWER

SAFETY AND LEGAL SAFETY GUIDELINES

Product Guidelines Hardy is versatile and does not have one specific use. Its uses are multifaceted. We do implore the user to keep within the specs of the Hardy.

Transport and Storage Ensure that the mains supply and battery leads are disconnected before transporting or moving the unit. No liability can be accepted for damage in transit once equipment has been unpackaged. Store the product in a dry environment, between -20°C to 60°C .

Refer to the battery manufacturer's manual for information on transportation, stowage, charge rates, recharging and battery disposal for your battery care.

General Maintenance The device must be switched off during maintenance and all cables removed from the direct feed to or from the unit. It must also be protected against unexpected switching off. Remove battery connections and ensure unit is off. If repair is required, only use original parts. Unauthorised attempts to repair Sterling units will lead to the warranty being voided. Only someone with adequate understanding of electronics and the unit itself should attempt a repair.

Ensure your connections are good and clean and aim to protect your unit from humidity and water ingress.

Safety Precautions Electrical appliances can be heavy. Please do not lift heavy units unassisted. Ensure that your product is correct for your intent. 12V battery. Incorrect use can lead to damage. Orientation is not critical to unit function, however may affect water ingress rating. Install device in a well ventilated space for cooling purposes. Do not expose the unit to snow, rain, water, spray, condensation, pollution etc, unless it is a waterproof unit. If it is a waterproof unit, only expose it to situations it is correctly rated for. Do not cover or obstruct the ventilation. Device connects to common negative. Common negatives must be earthed. In case of fire, use fire extinguisher equipment suitable for electrical fires. Avoid all possibilities of reverse polarity or short circuiting. Check cabling and connections frequently and ensure the connections are sufficient. Always protect DC cabling with the appropriate fusing. Ensure the unit is adequately and safely mounted to prevent displacement and damage. Always use a professional to install electrical products. Ensure the product is correctly set up for your battery. Keep out of reach of children

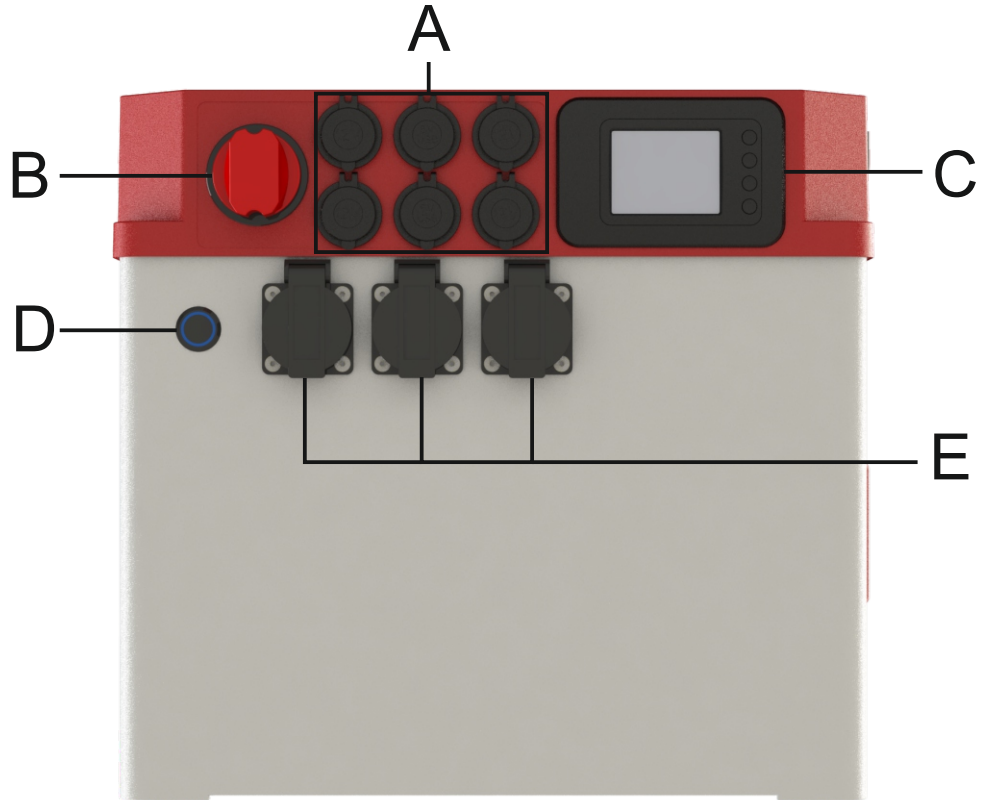
Cross Voltage Chargers **CROSS VOLTAGE THRESHOLD BATTERY TO BATTERY CHARGERS MUST BE INSTALLED WITH CARE**
READ THIS A COMMON NEGATIVE IS PARAMOUNT TO OPERATION, HOWEVER, BE INCREDIBLY CAREFUL NOT TO SHORT CIRCUIT OR REVERSE POLARITY **ANY EQUIPMENT OR CABLE.**

WARNING : All electrical appliances carry the risk of electrical shock. This equipment is designed to be used in combination with a permanent energy source (the battery). Always isolate the DC before performing any maintenance or inspection.

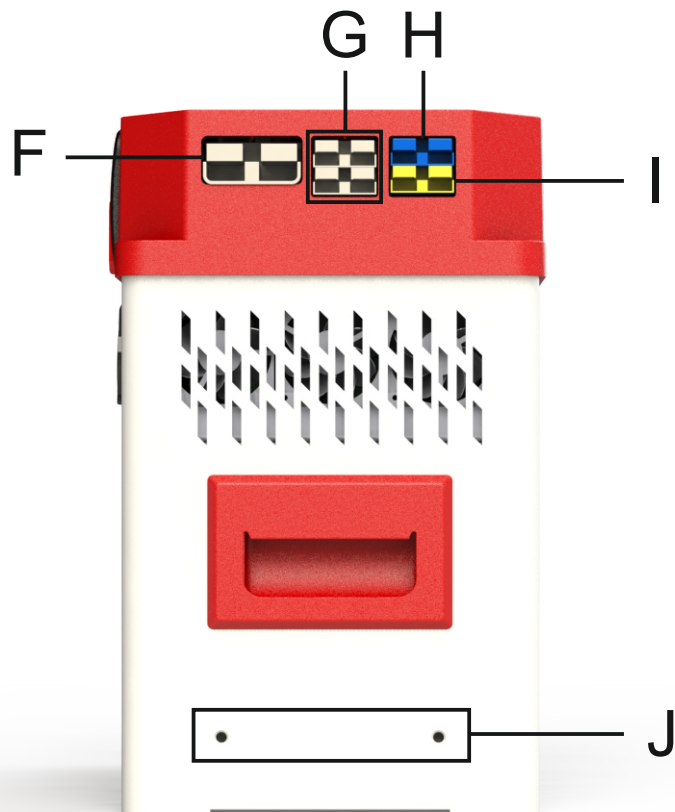
Do NOT remove the panelling to inspect the internals unless expressly told to by Sterling. This is not a product designed to be user-serviced.

Do NOT use the device in situations where there is danger of gas / dust / vapour explosions, or around potentially flammable produce.

FRONT



SIDE





HARDY HIGH POWER PORTABLE POWER PACK BREAKDOWN

Summary The Hardy has an incredible collection of features- it really is an entire vehicle power system in one box. To help you understand its use we've broken it down into a few of its main parts and features- so you can be as confident as we are that it's the perfect item for you.

A
USB + USB-C PORTS The top row of three contacts includes 3x USB and USB-C/PD charge/power ports with easily accessible ON/OFF switches besides them. This can be used to power LED lighting, phone chargers and a wide array of other USB powered items. The bottom row incorporates 2x 12V DC cigarette sockets and 1x Engel socket, allowing an even bigger range of items to be powered.

B
POWER SWITCH A large, obvious and simple to understand power switch for the Hardy. Turn it on when you need it, turn it off when you're done.

C
DISPLAY SCREEN The screen gives you all the information that could be of use to you; remaining capacity, overall state of charge, actual power in motion (both in Watts and Amps). Consider this your onboard battery monitor.

D
AC ON/OFF SWITCH A simple and obvious button-switch to turn ON/OFF your AC sockets at leisure. The LED backing of the switch makes it obvious whether the plugs should be live or not.

E
3500W INVERTER SOCKETS The 2x230VAC sockets on the Hardy can power more than you would expect. The Hardy has an **integrated pure sine 3500W inverter**. Each individual plug is rated to a normal 13A/3KW fuse, but with a 3.5KW continuous rating and a 5KW peak, it'll run more than you think. Final model will have an RCD installed.

F
175A DC CONNECTION This is the primary DC contact line using a 175A rated Anderson style connector and fused to 175A. Through here you can easily power a large range of DC appliances, connect higher powered DC chargers (like our Bb12120) or even consider connecting another battery bank (if it's of equivalent charge) to extend your battery capacity.

G
2x 50A DC CONNECTIONS These two smaller grey Anderson style sockets are similar to (F) but rated to 50A each, instead of 175A. The same rules apply, though. If you have a <50A charger available, or 50A DC appliances that you want to power, plug them right in.

H
30A DC/DC CHARGER The blue Anderson style socket is for the in-built DC/DC charger. When paired with a D+ ignition feed it will draw up to 30A from this blue socket connection, normally connected to an alternator circuit so you can charge while you drive.

I
18-90VOC 700W SOLAR REG The yellow Anderson style socket is for our solar regulator. With a VOC range of 18V-90VDC and a 700W upper limit on how much can be harvested, you've got a better system than most off-the-shelf regulators already built in. All you need to do is connect your PV circuit (either from the roof panels, or by considering our CSP range of deployable solar panels) and let the sun do the work for you.

J
MOUNTING BRACKETS - J Mounting bracket connections points - on both sides. Brackets are provided.

UNPICTURED On the top of the Hardy unit, there is a 15W Wireless/Induction phone charger, making it a perfect place for your phone.

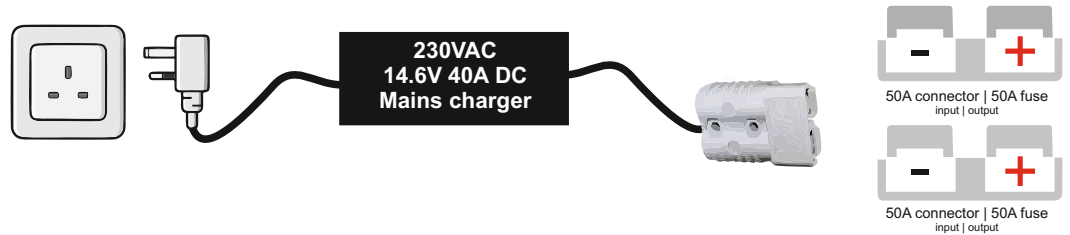
Included Accessories

230V Charger (Prewired)	14.6V 230VAC mains charger (40A)
Floor mounting brackets	Includes 4x Hex screws to connect to Hardy body and 4x wood screws for floor/base connection.
Pre-wired Solar Socket (MC-4)	Yellow 50A Anderson Socket with Mc4 connector fitted cable
Spare 50A sockets	Spare Anderson sockets (1x Yellow, 1x Blue, 2x Grey - Includes terminals)
Ignition feed cabling	A simple plug and ring terminal for the Ignition contact on the Hardy
Pre wired Engel socket	As described
175A Socket (Jump Leads)	175A Anderson Socket with large Jump Leads for a DC connection
Anderson Dust/safety covers	Spare covers for the Anderson sockets if unused- to protect against dust or corrosion.

PRODUCT INFORMATION CHARGING UP HARDY

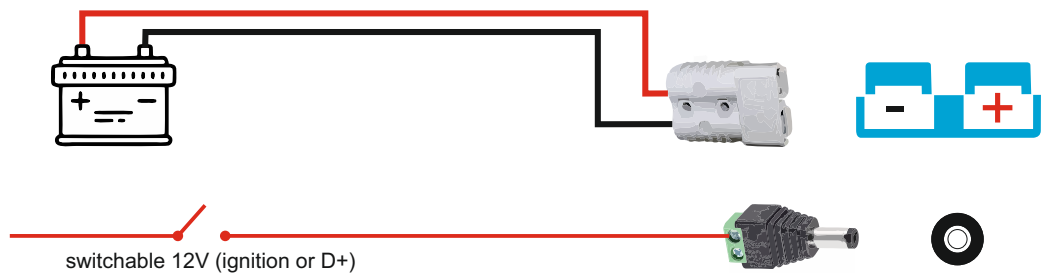
From 230VAC
(mains)

The Hardy comes with a 40A mains charger. Simply plug the charger into a 3 pin socket and the other end via the 50A Anderson socket into one of the 2x 50A sockets on the Hardy's side. Ensure the red isolation switch is in the 'on' position. The charger should begin charging immediately.



From Alternator / input battery
charging when driving along

To charge the Hardy up whilst driving along in either a vehicle or boat, simply connect the Hardy up to the starter battery or leisure battery. Feed a 10mm² cable via the Anderson style socket into the blue connector. The blue connector leads to an internal 30A DC DC charger. The internal DC DC charger provides the correct charging profile to the battery, so, you do not need to worry about any settings. Max voltage is 33V input. So, shall work with 12V or 24V input batteries.



The only requirement is to feed a switchable signal to ignition terminal on the corner of the Hardy. For the 30A charger to work, the signal must be a live voltage ~12V. With either 0V signal or no signal feed connected the 30A DC DC charger will not work.

From Solar panels

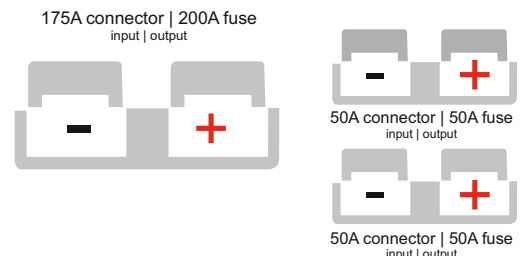
To charge the Hardy up from solar, simply connect the Hardy up to your panel. You do NOT require a solar regulator as there is one built in. Ensure open circuit voltage is <100VDC. Shall operate best between 20V-90VDC. Maximum harvest is 700W ~50A at 14V.



Other

Using the 3 provided grey sockets allow for flexibility and the ability to either add power into the battery or withdraw power. However, the current must never exceed the rating of the connectors.

The grey sockets on the Hardy provide **no current limit**. Therefore, anything going in or out of these sockets **must be** within the current rating of the connector. They are fused, for protection. Only current limiting chargers or **suitable amperage** loads are to be connected to these grey connectors.

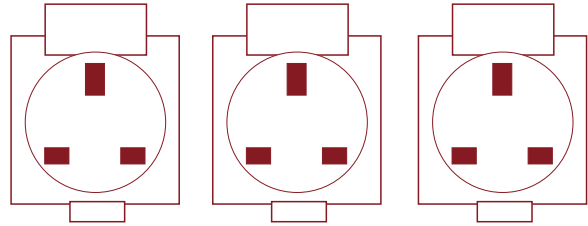


PRODUCT INFORMATION USING HARDY POWER

Inverter

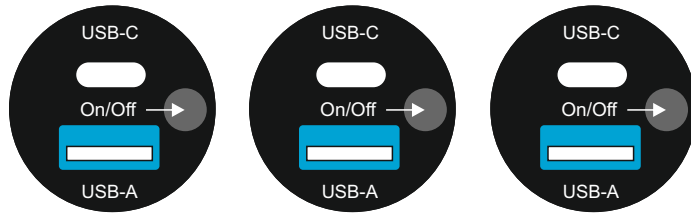
The Hardy comes with a 3500W (max) pure sine wave inverter. Running at full power a H3500 would last 20-30mins. A H3500P would last double this. There are 3x AC outlets on the side of Hardy to take the power. A standard UK plug is 13A, therefore, you are limited to about ~3000W per socket. If AC is required, ensure the AC on/off switch is enabled. There shall be a blue halo illuminate around the switch, if 'on'.

AC on / off



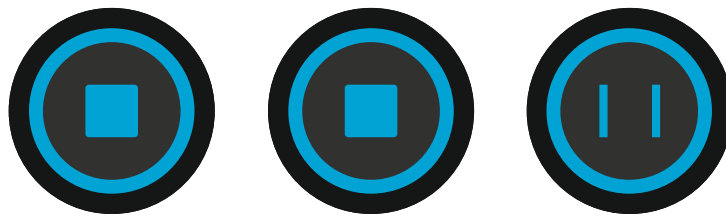
USB-C and USB-A

There are 3x sets of USB ports on the side of the Hardy. There are 3x USB-C rated at 18W. There are also 3x USB-A rated at 10W. Press the on button to engage.



Cigarette 12V socket + Engels socket

There are 2x standard 12V cigarette style sockets - with 15A fuses. There is 1x Engel socket - this is ideal for connecting fridges to, as it gives a firm connection.



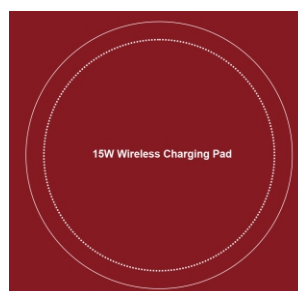
Standard 12V

Standard 12V

Engel 12V

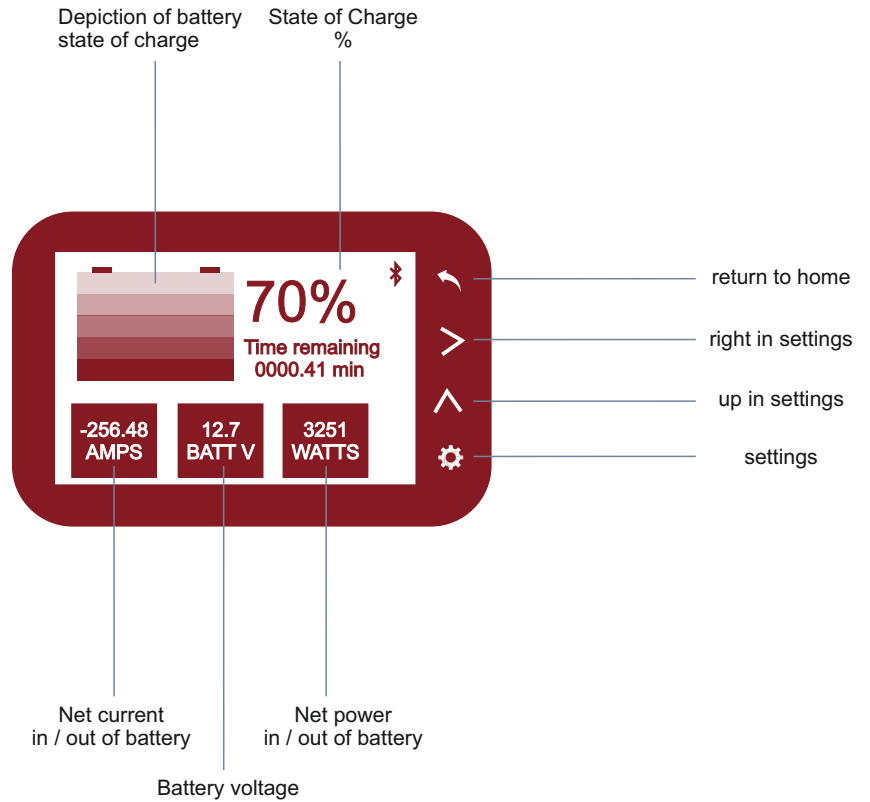
15W Wireless Charging Pad

This 15W wireless induction phone charger is on the top of Hardy. Place phone in the centre. It should operate automatically.



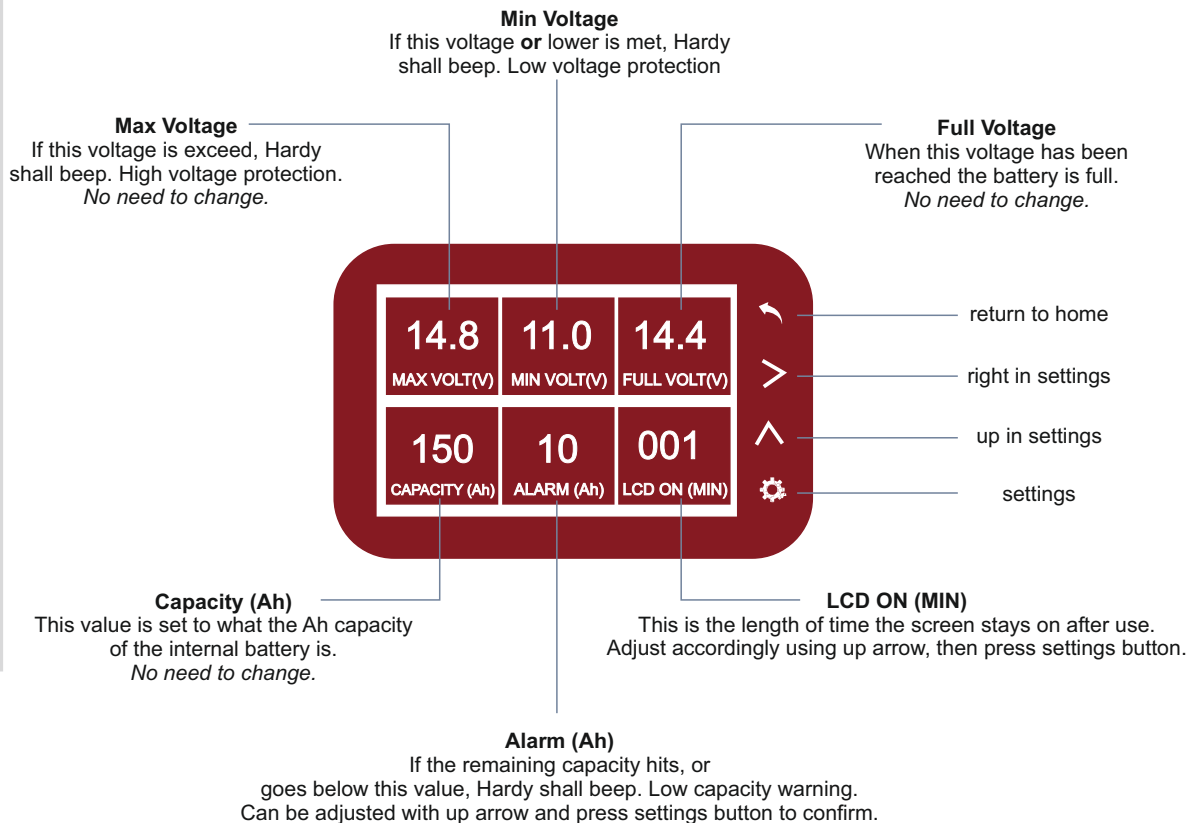
PRODUCT INFORMATION THE SCREEN

Main screen home page



Settings | Menu screen

Generally, little to nothing needs changing on this screen.





PRODUCT INFORMATION THE APP

Use the QR code to locate app

Or Type in Licitti in Play / App Store

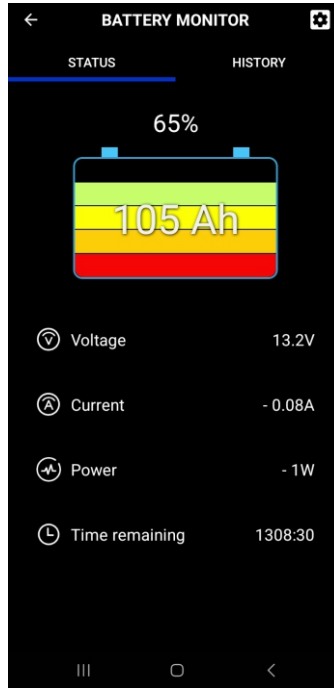


icon image

Once downloaded open the app and locate the Hardy signal. Ensure Hardy is turned on.

Once selected this screen should appear on your phone / device.

The data simply mirrors from the Hardy on to your phone



Adjusting settings

It is often easier to make adjustments to the Hardy settings via the phone app. If you wish to make changes, please ensure to make a note of what the defaults were.

When you want to enable the change, ensure you press SYNCHRONIZE

