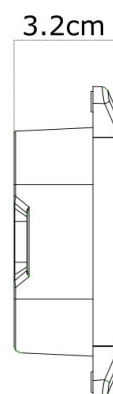
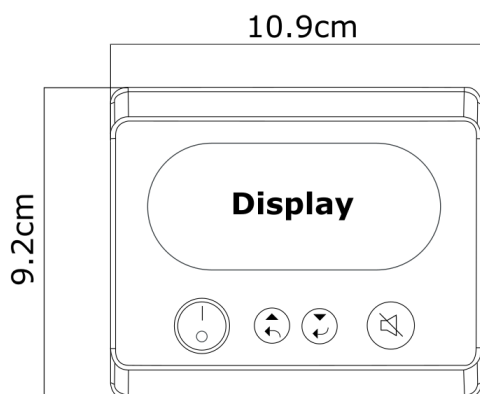
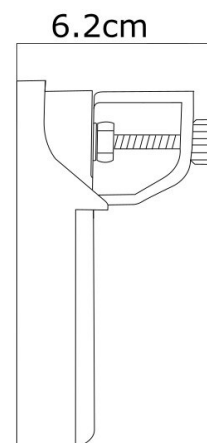
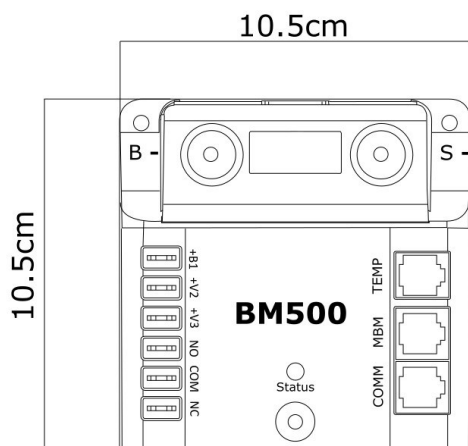
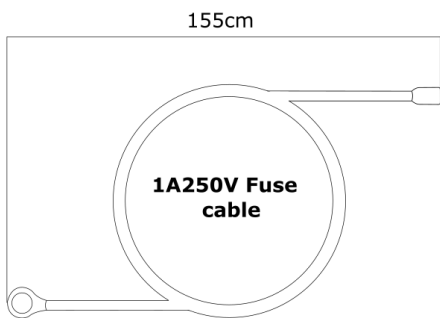
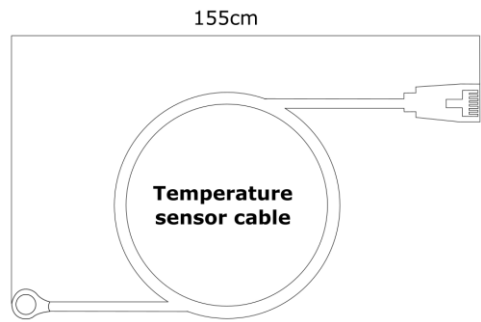
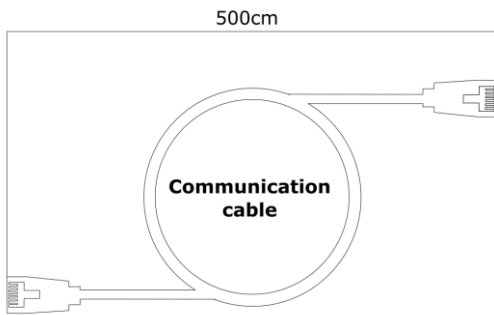
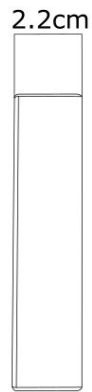
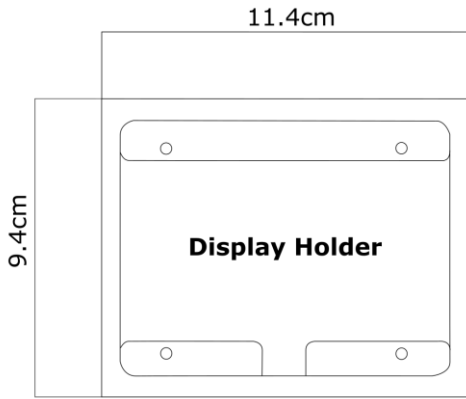


BATTERY MONITOR KIT

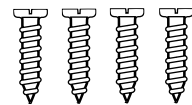
Smart battery monitor kit to fit the Hero Camper. It enables you to see charge and discharge regardless of which battery you have installed. The information is shown on display and can be shown on the app as well.

COMPONENTS AND DIMENSIONS

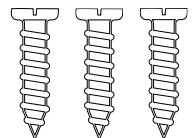




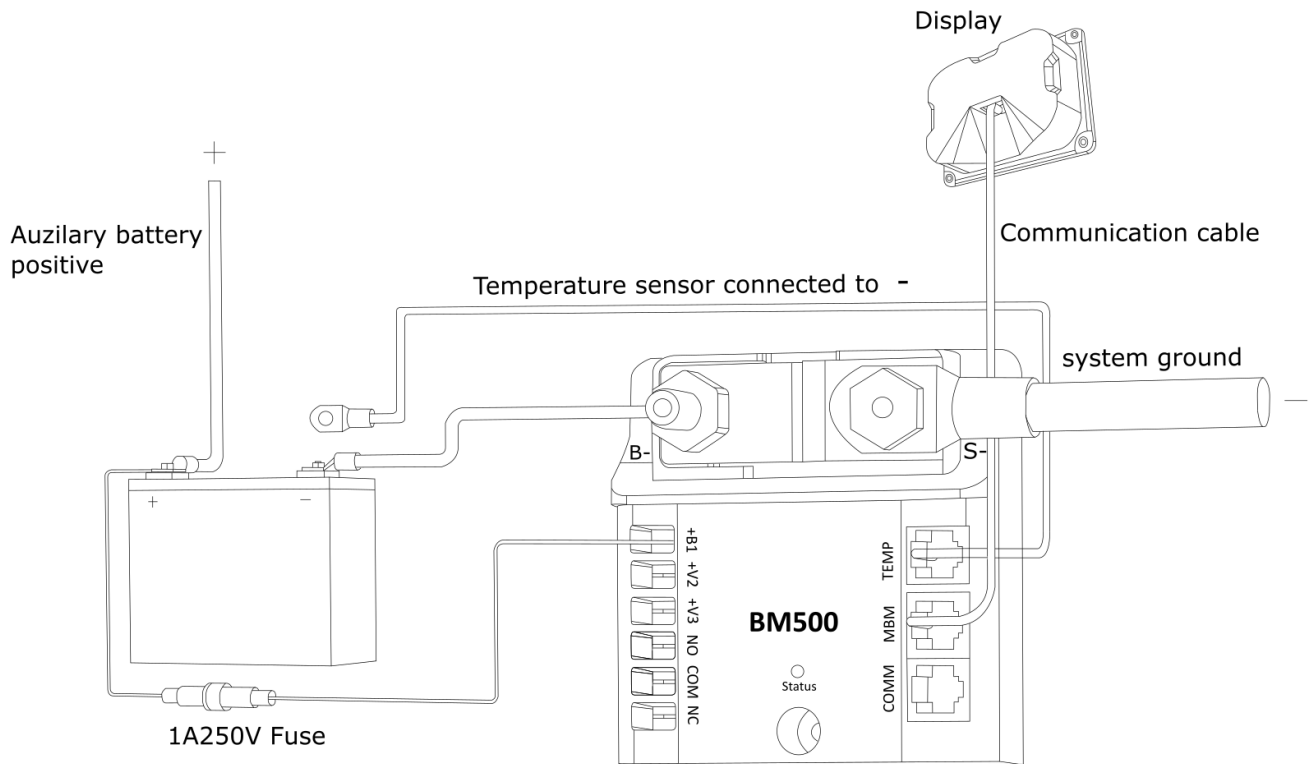
PH 10x2mm



PH 20x3mm

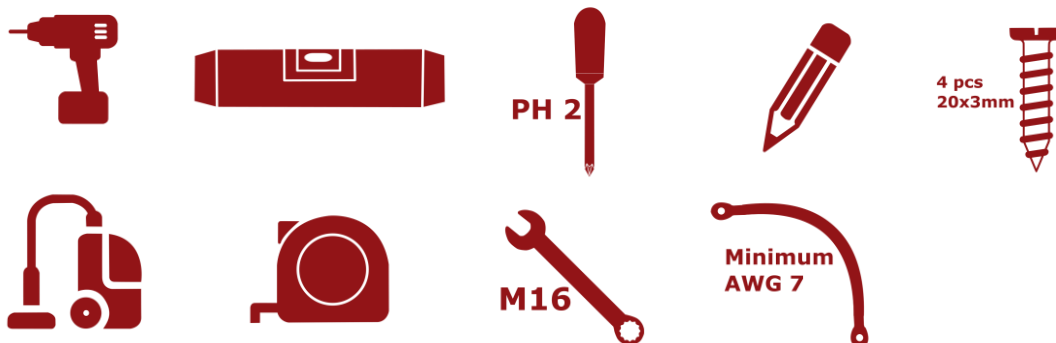


Wire Diagram



- Please note this is only for installation in Hero Camper. If the product is not for a Hero Camper we refer to the original manual of each product.

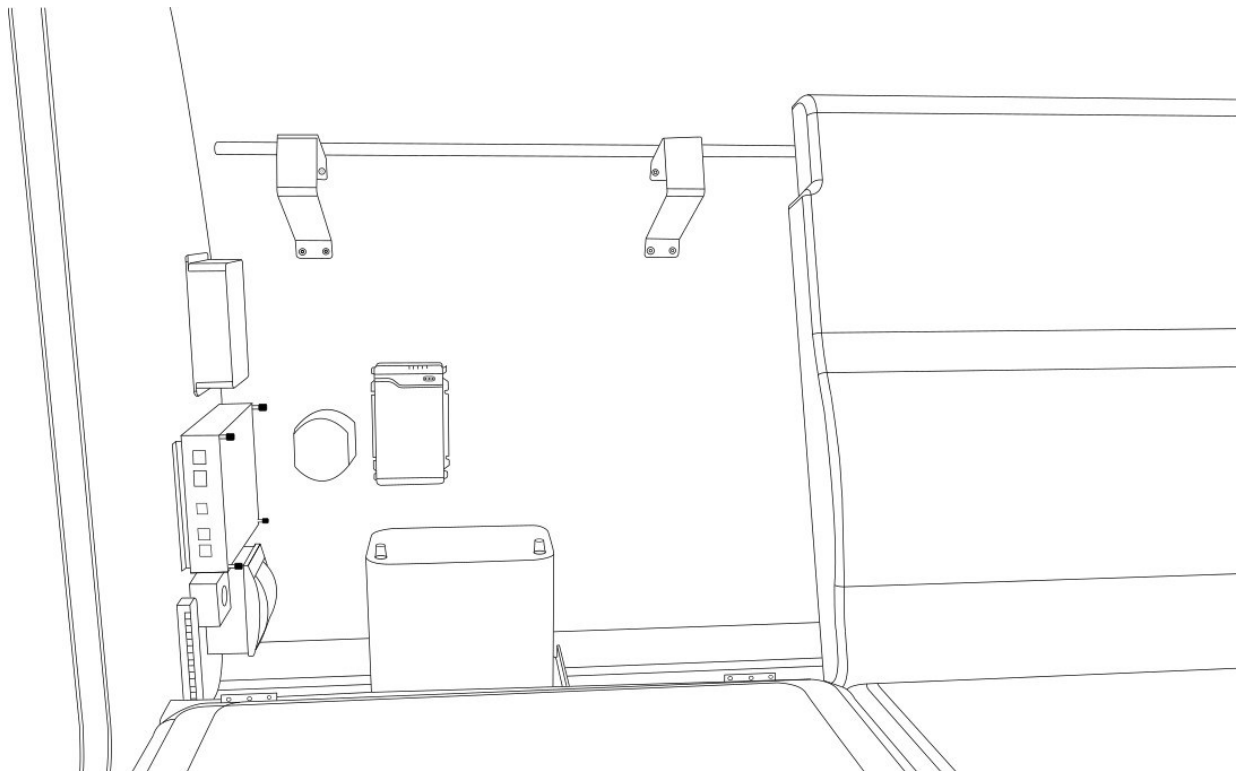
TOOLS FOR INSTALLATION



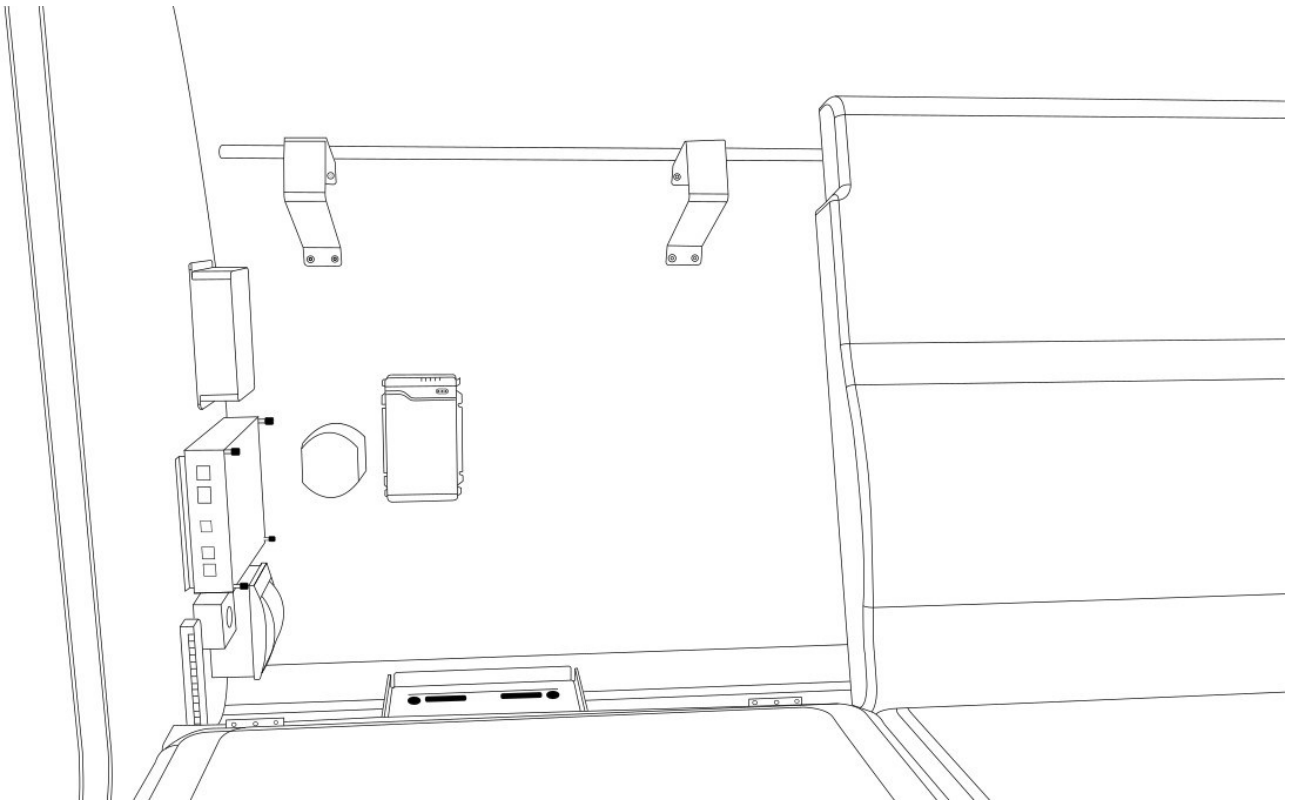
INSTALLATION GUIDE

Please note this is only an example for Hero Camper. There can be some models that have different electrical installation setup. Refer to the installation diagram above as guideline. If the product is not for a Hero Camper we refer to the original manual of the manufacturer for each product.

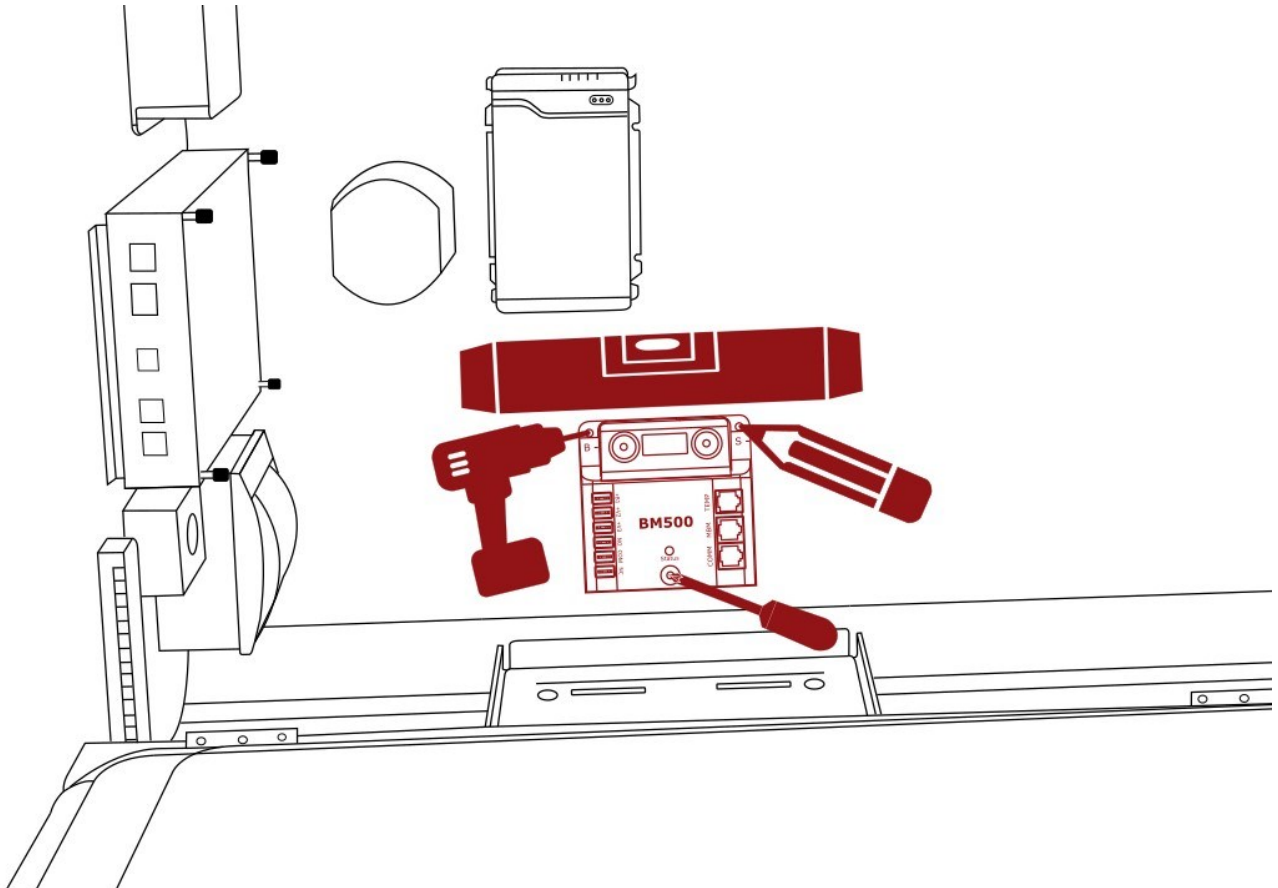
- 1) Pull down the seat inside the Hero Camper.



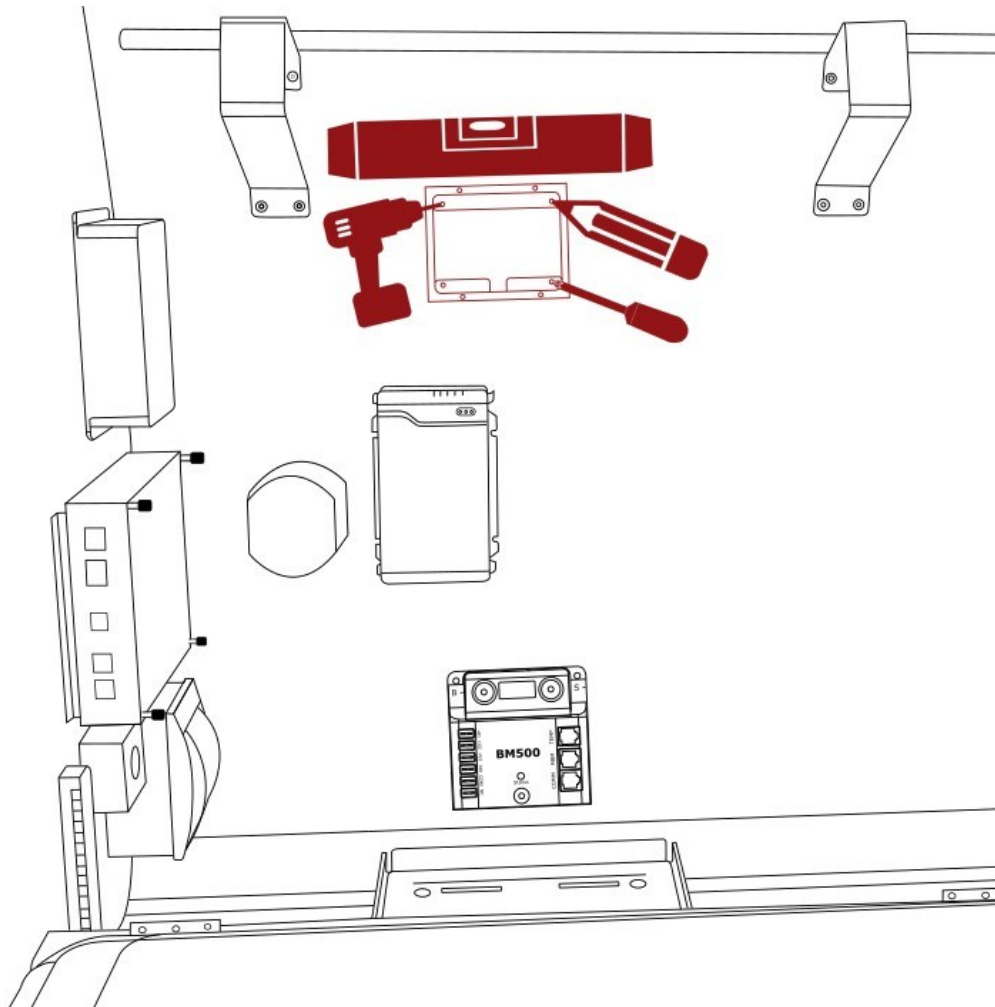
- 2) Remove the battery from the holder to ensure you have enough working space. You do not necessarily have to deattach the wires.



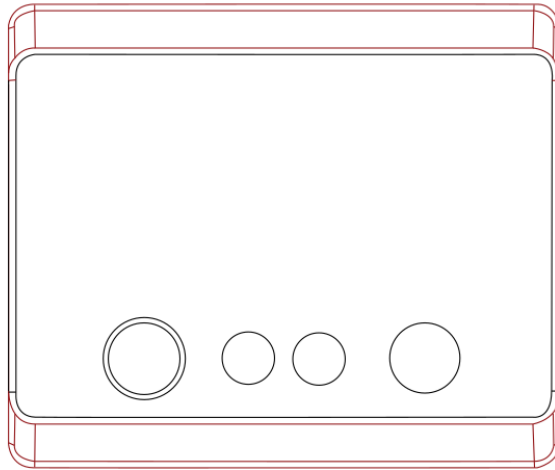
- 3) Use leveller to position the BM500. Mark the 3 holes with a pencil. Remove the BM500 and use an $\varnothing 2\text{mm}$ drill. Attach the BM500 with the provided PH 20x3mm screws. Use vacuum to remove any leftovers.



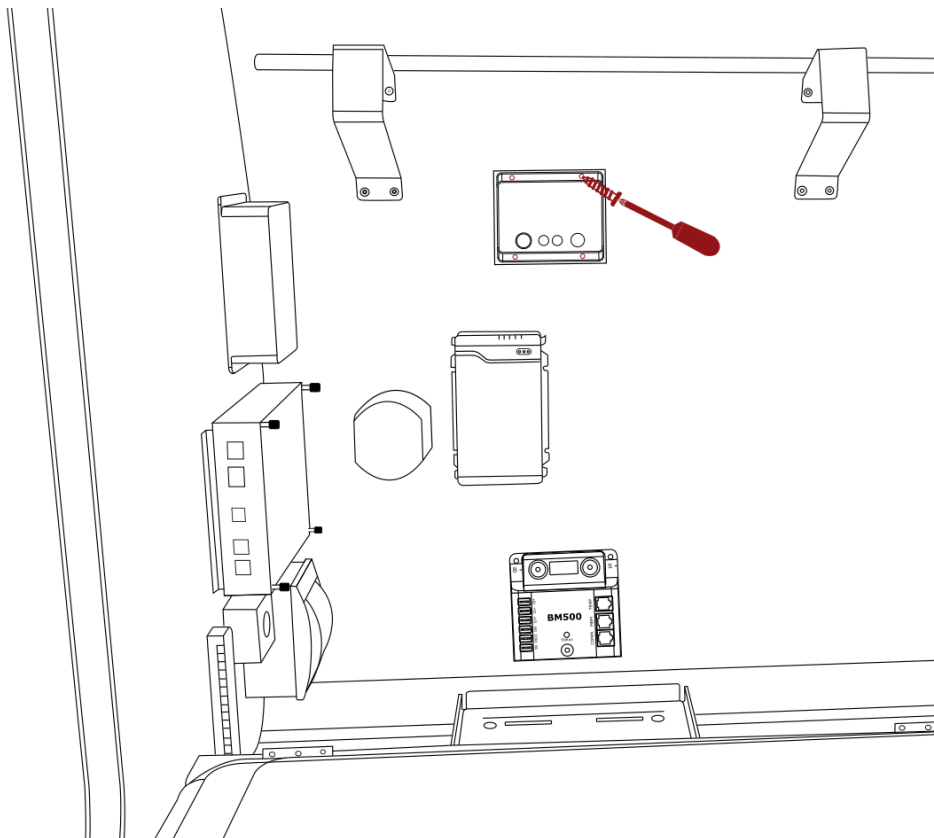
- 4) Use leveller to position the Display holder. Mark the 4 holes with a pencil. Remove the Display holder and use an $\varnothing 2\text{mm}$ drill. Attach the Display holder with preferred screws. Use vacuum to remove any leftovers.



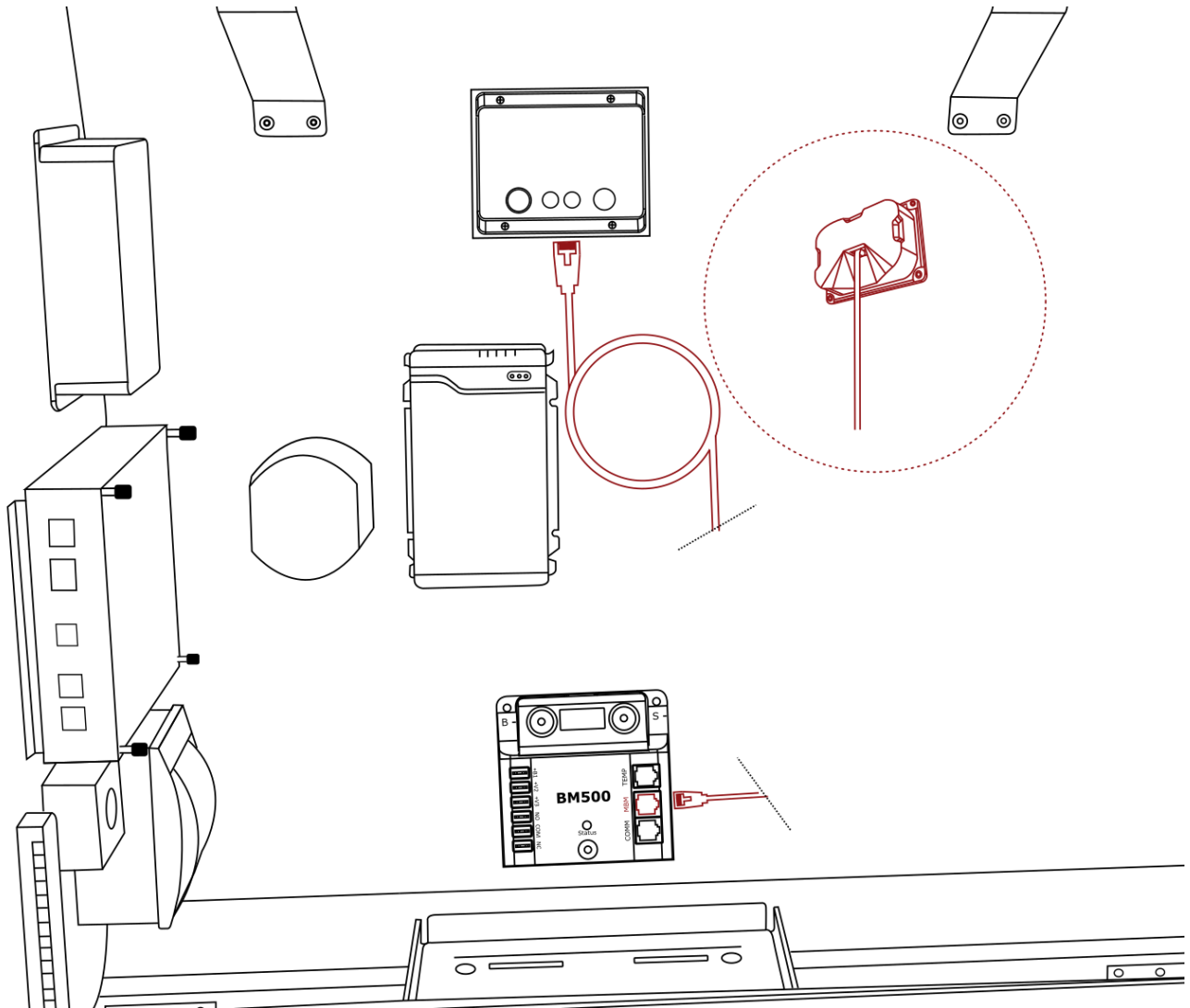
- 5) Remove the plastic cover for screw holes gently by hand on the Display.



- 6) We recommend inserting the communication cable into the display before fully mounting the display to the holder (see step 7). Mount the display into the installed display holder and gently assemble it with the provided PH 10x2mm screws. Be careful not to overtighten. Re-mount the plastic cover afterwards.



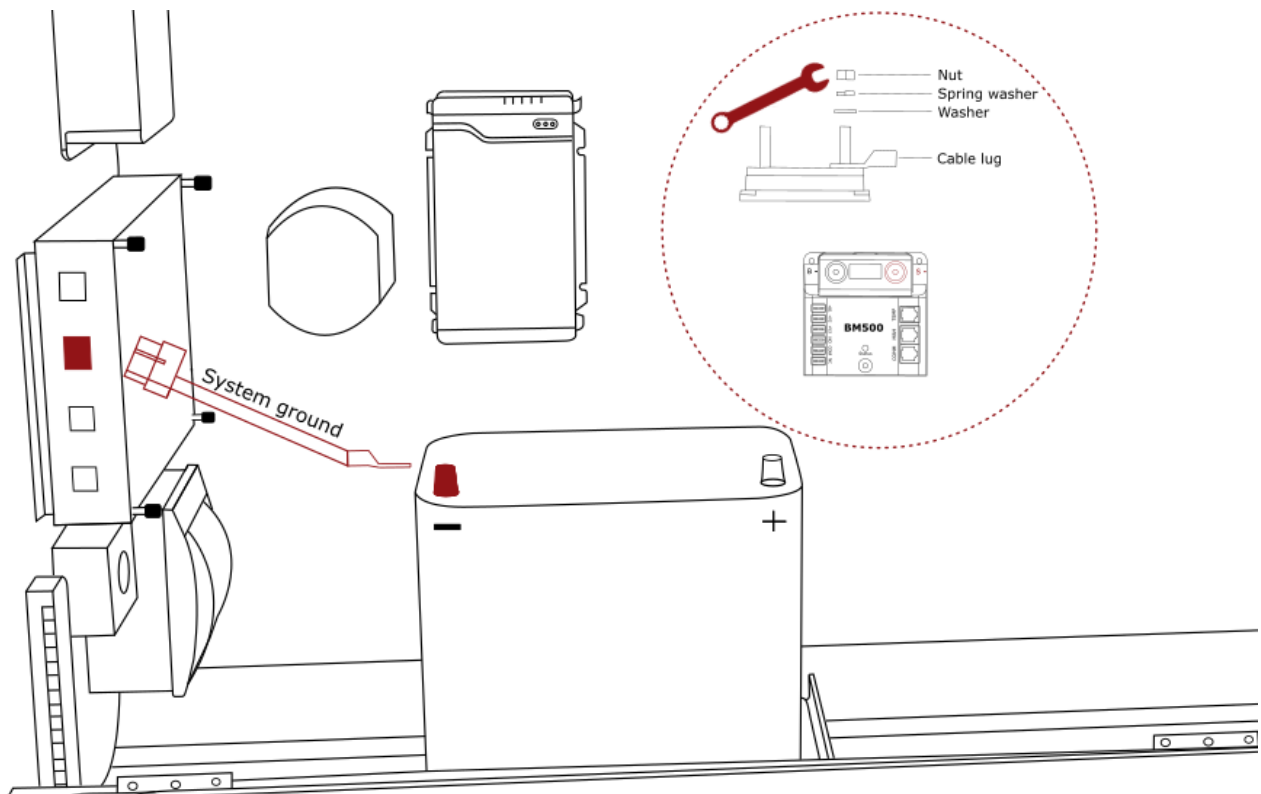
7) Install the Communication cable into the display and the MBM port on the BM500



- 8) Start with unscrewing the safety plate for the BM500 by hand. Then remove the nut, spring washer and washer. If you can not do it by hand, use a M16 wrench.

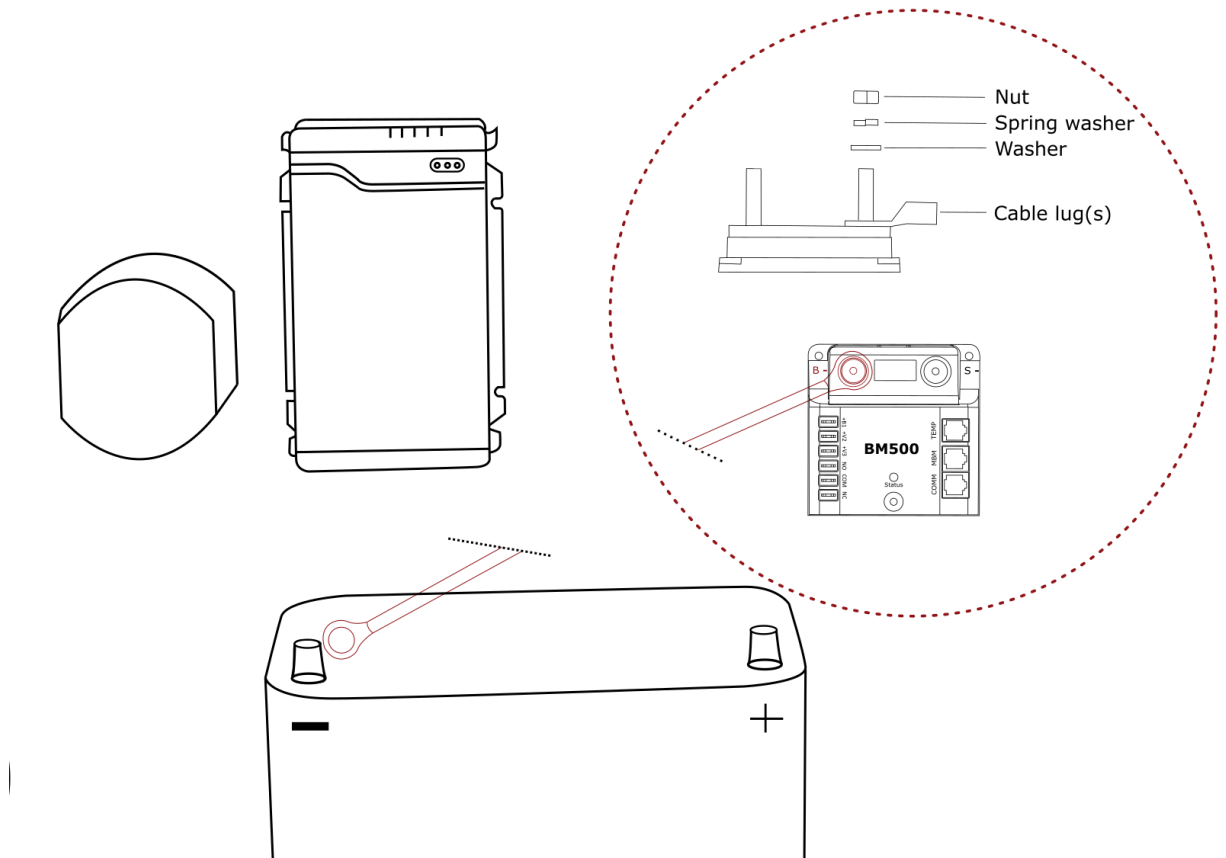


- 9) Remove the negative system ground cable and connect it to the BM500 S- port. Use a M16 wrench to tighten.



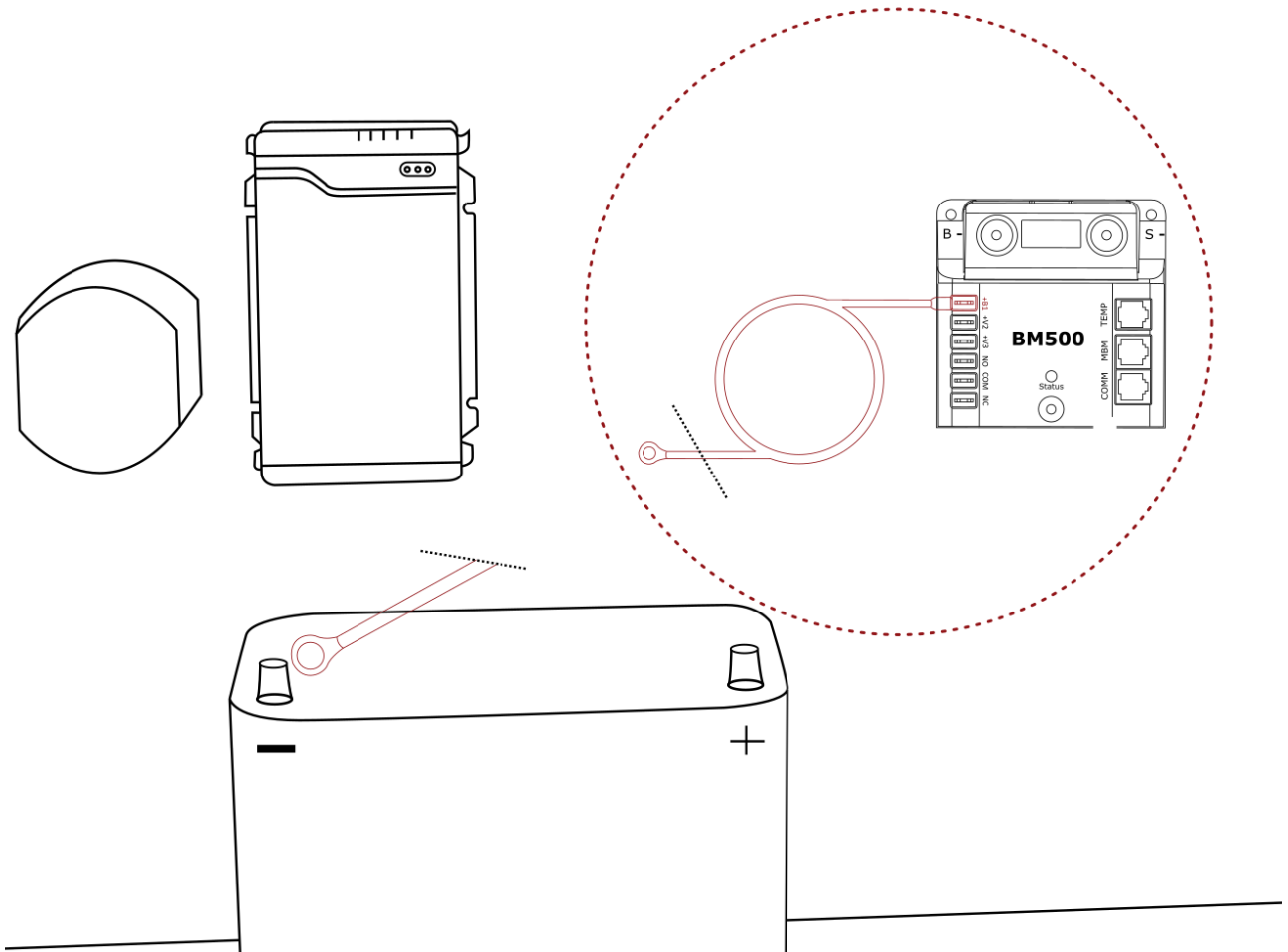
10) Measure the length from negative pole on battery to B- on the BM500. Cut your cable in correct length and install cable lugs in each end ($\varnothing 5,5\text{mm}$).

11) Mount the cable to B- on the BM500. (The other end will go to negative (-))

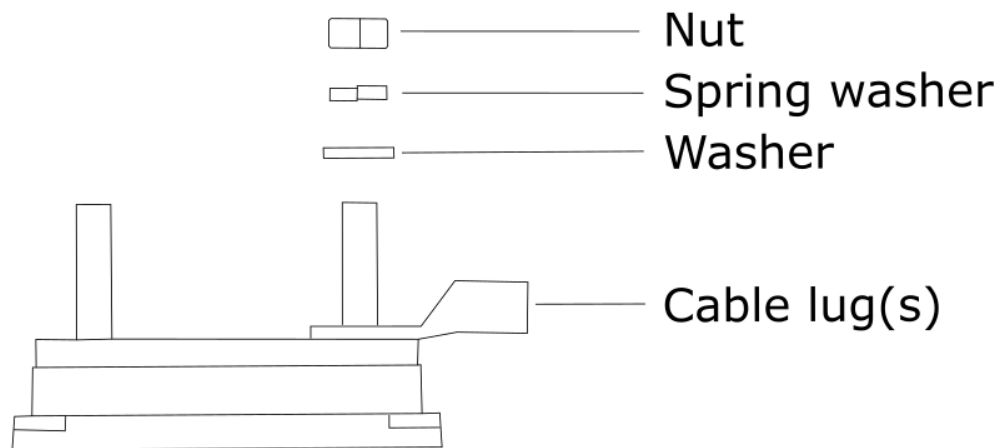


12) Reinstall the protection cover on the BM500. (See section 8)

13) Insert the 1A250v Fuse cable to +B1 on the BM500. (The other end will go to negative (-))



- 14) Finally attach the B-, then the 1A250v Fuse- and the Temperature sensor (TEMP) cable to the negative (-) pole on the battery. (There might be other cables attached already). Please ensure the connection is fastened as below picture.

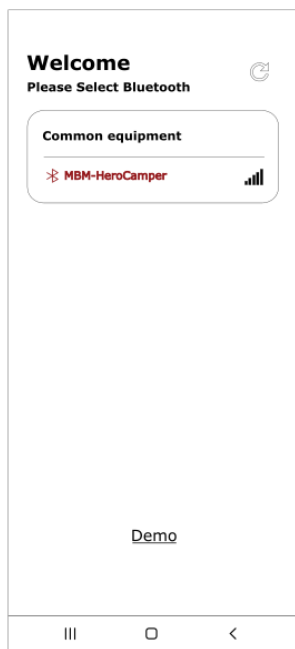


SETUP BY APP

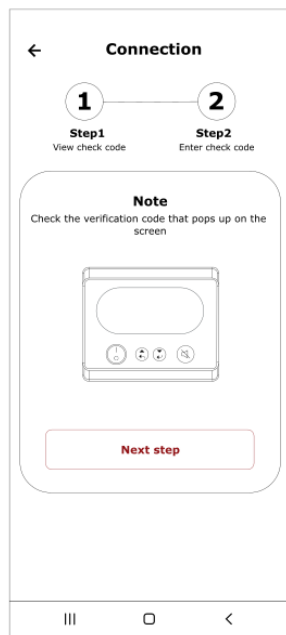
For Android: Open Google Play on your mobile device and download TBB BM500 App.

For iOS: Open App Store on your mobile device and download TBB BM500 App.

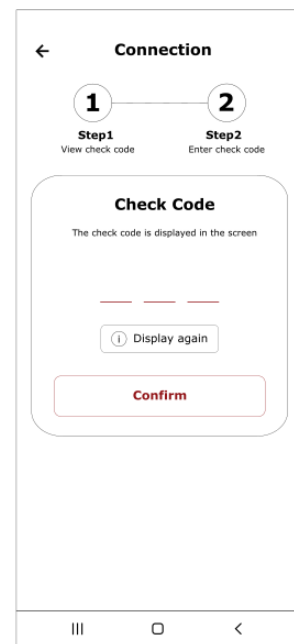
After installation – open the app and you will see the “Welcome Screen.”



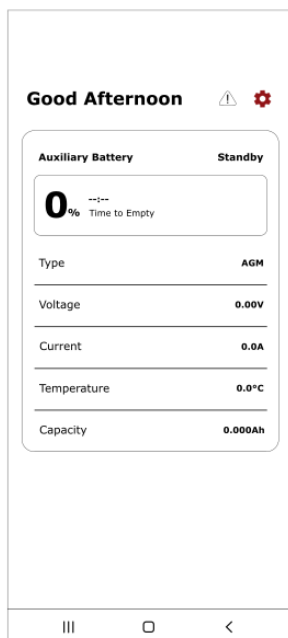
1) Select your device



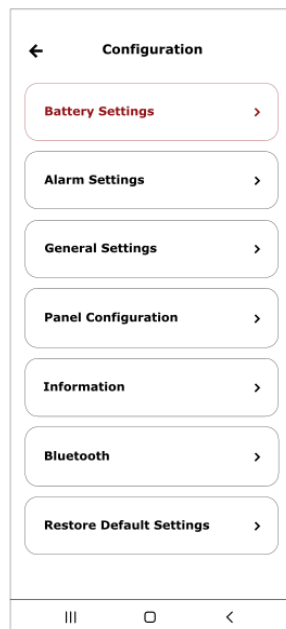
2) Check the display for verification code and click "Next step"



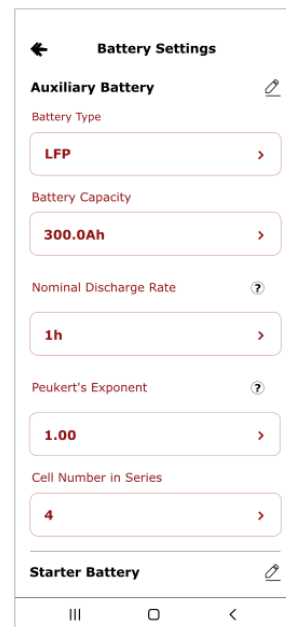
3) Insert the code from the display and click "Confirm." If you did not see the code, click "Display again"



4) Click on installation



4) Click on "Battery Settings"



4) Insert information according to your battery specifications.

If you are in doubt about specification of your battery. Please contact the dealer where you bought the battery. There are many other features that can be modified. This is not necessary for the Hero Camper and we refer to the original manual for these modifications.

SETUP BY DISPLAY

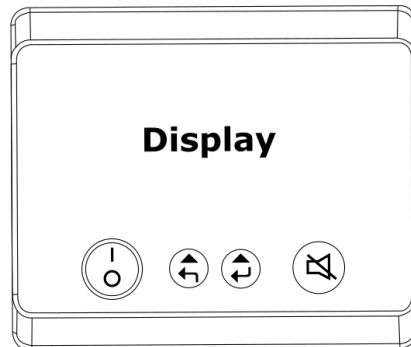
There are 4 **available** settings to choose from:

F01 – Battery type setting

F02 – Battery capacity setting

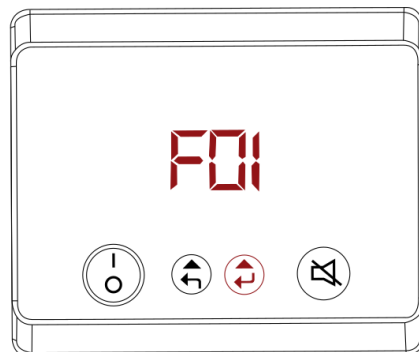
C01 – Reset Battery

C02 – Buzzer alarm setting



F01 – Battery type setting

Choose the chemistry type of your battery. This menu can be accessed by the following sequence:



By pressing the “Scroll down button” on the display for 2 seconds you will enter the setting menu. Choose F01 and hold down the “Scroll down button” for 2 seconds to confirm. Then press “Scroll down button” shortly and choose the correct number for the battery:

0 – AGM

1 – GEL

2 – Semi traction

3 – Traction

4 – Lead Carbon

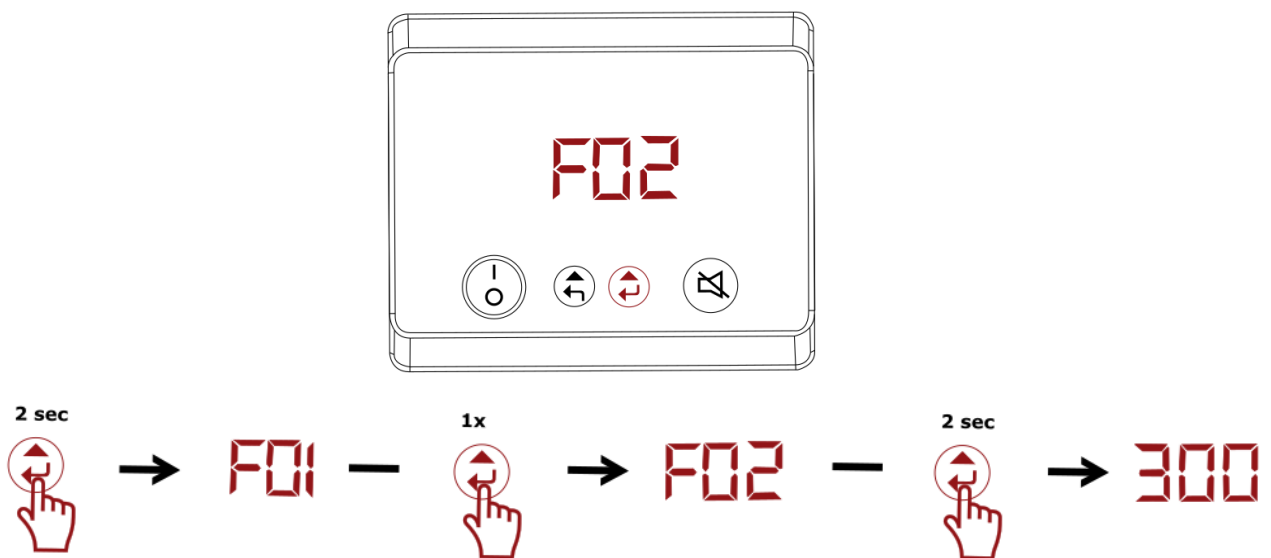
5 – LFP

When the correct number is chosen, press and hold “Scroll down button” for 2 seconds to confirm the selected battery.

- You can see the type of battery in the manual of the battery. Otherwise contact the dealer where you purchased the battery.

F02 - Battery capacity setting

Chose the auxiliary battery’s capacity. This menu can be accessed by the following sequence:



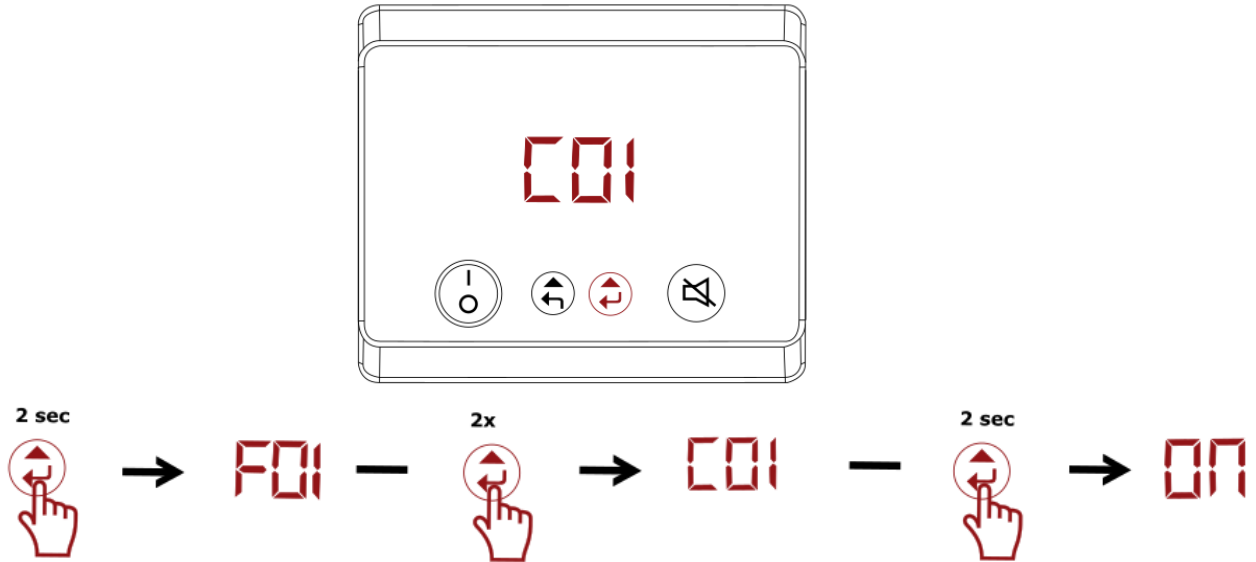
Press “Scroll down button” to move the cursor in hundreds, tens, and single digits.

Press “Scroll up button” to change the number in 0-9

Press “Scroll down button” for 2 seconds to confirm.

C01 - Reset battery

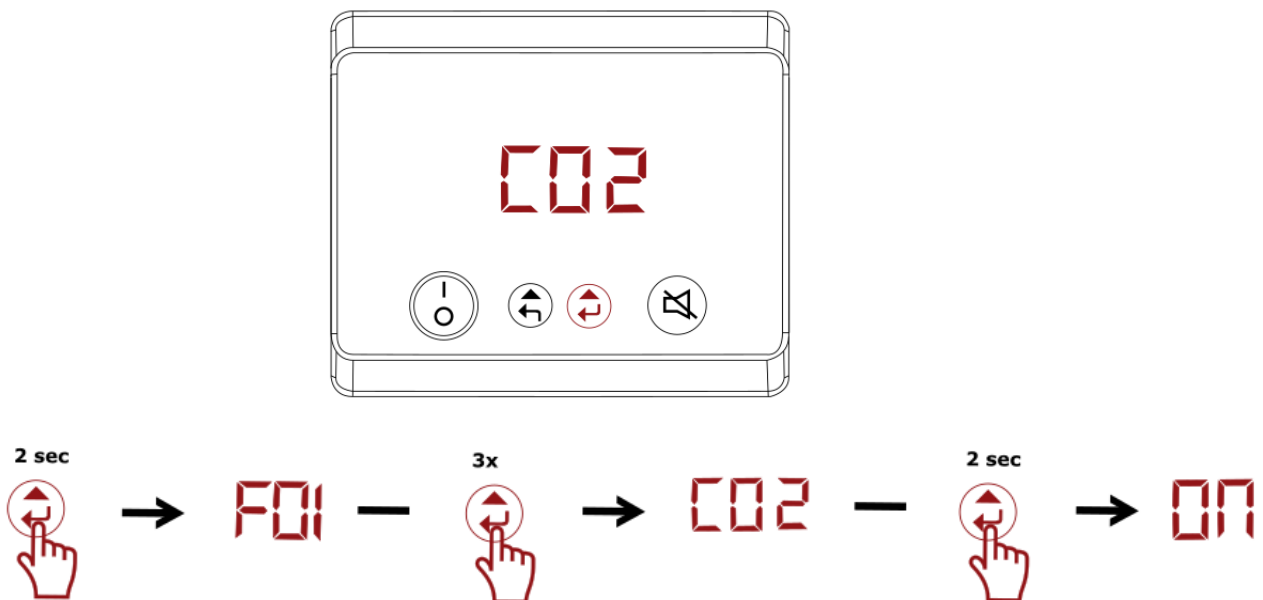
You can reset battery if there has been installed a new battery with the same specifications as previous one.



When ON is selected, press “Scroll down button” for 2 seconds to confirm.

C02 - Buzzer alarm setting

Turn on or off the buzzer alarm. This menu can be accessed by following sequence:



Choose between on or off. Press “Scroll down button” for 2 seconds to confirm between on or off mode (on is default setting)

SAFETY INSTRUCTIONS



The shunt must always be installed into the negative line.



The battery negative terminal may only contain one cable, which is the one going to the shunt. If there are other cables connected to this terminal as well, this may result in wrong readings on the display.



Always connect the battery negative terminal to the B- of the shunt. Connecting this terminal to the S-, will result in wrong readings on the display. Please ensure the BM500 and Display are mounted in a dry environment.



Do not expose BM500 and Display to direct sunlight.



This product should be installed by a Hero Camper dealer or educated technician.

WARNING CODES & TROUBLESHOOTING

Upon any warning the display corresponding warning code will appear in the Display. Please see underneath sheet for definition of each error code:

Warning code	Warning type	Description
E01	V.LOW (+B1)	Low battery voltage for auxiliary battery
E02	V.HIGH (+B1)	High battery voltage for auxiliary battery
E03	SoC.LOW (+B1)	Low state of charge for auxiliary battery
E04	TIME.LOW (+B1)	Low time remaining for auxiliary
E05	I.CHARGE (+B1)	High charge current for auxiliary
E06	I.DISCH (+B1)	High discharge current for auxiliary battery
E07	T.LOW (+B1)	Low battery temperature for auxiliary battery
E08	T.HIGH (+B1)	High battery temperature for auxiliary
E09	MIDPNT (+B1)	Midpoint voltage deviation
E10	V.LOW (+V2)	Low battery voltage for starter battery
E11	V.HIGH (+V2)	High battery voltage for starter battery
E12	V.LOW (+V3)	Low battery voltage for 2 nd starter battery
E13	V.HIGH (+V3)	High battery voltage for 2 nd starter battery










Status flash interval	Description
Red alternated with the green	Power on initialization state. When the BM500 is just energized, the battery must be in static status
Green flashing	Normal
Red flashing	Alarm (see original manual)
Red on	The charge or discharge current of the auxiliary battery exceeds 500A



The display can show a wide range of important battery parameters. The display will automatically show information of Time to go, Voltage, Current for the auxiliary battery; Or users can switch the information by short pressing the “Scroll up button” or the “Scroll down button”. When not in use the monitor, will turn off automatically after 150 seconds. The backlit will be turned ON again if any button is pressed. It is essential to have the battery capacity installed correctly. When the battery is fully charged. Please have the SoC displayed 100% as calibration procedure.

Issue	Trouble shooting
The BM500 does not operate. LED status does not flash.	<ul style="list-style-type: none"> - Check the B- and battery - Check battery voltage. Battery might be flat. The B1+ voltage must be >7VDC - Try to restart the monitor by removing and reconnecting the supply wire to B+
The monitor does not operate.	- Check the Ethernet cable to MBM (display)
Current readout gives wrong polarity. Current should be positive when charging and negative when discharging the battery.	- Shunt installed in reverse. Make sure that the B- is connected to the battery negative terminal and the S- bolt to the battery loads.
Display show “_ _ _” in Time to go readout and the state of charge (SoC) bar is flashing.	- Make sure that the battery is not charging and discharging when you restart the BM500
State of charge and / or Time to go readout not accurate	<ul style="list-style-type: none"> - Check if all current is flowing through the B- of the shunt. The negative terminal of the battery may only contain the wire going to B- side of the shunt. - Shunt installed in reverse. Make sure that the B- bolt is connected to the battery negative terminal and the S- bolt to the battery loads. - Check if all battery properties F01 and F02 are correctly set. - Check if the battery monitor is synced with your batter. <p style="text-align: center;">Perform full charge cycle.</p>
The monitor resets all the time	<ul style="list-style-type: none"> - Check the wiring for corrosion and / or loose contacts. - Battery might be flat or defective
The monitor does not automatically synchronize	- The battery is not reaching its fully charged state. Please check if the charge algorithm matches the requirements of your battery. Do not interrupt the charge process before it is finished

DISPLAY - & PICTOGRAM INFORMATION

Display Icon	Name	Description
	Charge	The battery is being charged
	Discharge	The battery is being discharged
	Overcurrent	High charge or discharge current alarm for auxiliary battery
	SoC.Low alarm	Low state of charge for auxiliary battery
	Temperature anomaly	Low temperature or high temperature alarm for auxiliary battery
START BAT	Starter battery voltage	To indicate the voltage of starter battery
	ON/OFF switch	It is used to ON&OFF control to TBB's lithium batteries (for other battery, it is not functional)
	Scroll up or Return button	To scroll up to last selection or as function of exit configuration, with long press for 2 seconds
888	Value information area	MBM displaying value
	Scroll down or Confirm button	To scroll down to last selection or as function of confirmation of your selection and configuration, with long press for 2 seconds
	Mute button	To mute or unmute the alarm
AUX BAT	AUX.BAT SoC	To indicate the auxiliary battery state of charge (SoC) (%)
Time to go	Minutes	Shows how much time is left under the present load, before the auxiliary battery is empty. Or shows how much time is left under the charge current, before the auxiliary battery is full. Max value is 999
Volage	V	Shows the volage of the auxiliary battery which is connected to the +B1 input
Current	A	Shows the current flowing in or out of the auxiliary battery

SPECIFICATIONS

BM500	
Communication	RS485, CAN
Nominal battery voltage	7~95V
Nominal current	±500A
Auxiliary battery voltage +B1	7~95V
Starter battery voltage +V2,+V3	1~95V, max support 2 batteries
Battery capacity	10~10000Ah
Battery type	AGM / GEL / Semi traction / Traction / Lead carbon / LFP
Temperature sensor	1
Working temperature	-20~50°C
Storage temperature	-30~70°C
Voltage accuracy	±0.3%
Current accuracy	±0.4%
Continuous current	500A
IP	IP20
Standards	Ce certified EN60335-1:2012, EN62233:2008, EMC:EN61000-6-3:2012, EN50498 Automotive EMC
Part Number	EN1204

RECYCLING



Your product is designed and manufactured with high quality materials and components which can be recycled and reused. This symbol means that electrical and electronic equipment, at their end-of-life, should be disposed of separately from your household waste. Please dispose of this equipment at your local community waste collection / recycling center. In the European Union there are separate collection systems for used electrical and electronic products.

Please help us conserve the environment we live in!

All products that are not mounted by an authorized #HeroCamper dealer are at your own risk!

#HeroCamper™ - www.herocamper.com

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