BMPRO

OWNER'S MANUAL

# MINIBOOSTPRO


TEAMBMPRO.COM

# SAFETY PRECAUTIONS

Please read the Safety Precautions before installing or using the MiniBoostPRO.

Be sure to observe all precautions without fail. Failure to observe these instructions properly may result in personal damage, or personal injury which depending on the circumstances may be serious and cause loss of life.

| WARNING | |
|---|---|
| ⚠ | Correct installation is the most critical factor in ensuring the safe use of the MiniBoostPRO. If every consideration of these instructions has been satisfied, the MiniBoostPRO will be safe to operate. |
| ⚠ | This product is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning the use of the appliance by a person responsible for their safety. |
| ⚠ | Children shall not play with this product. |
| ⚠ | Metal conducts electricity. Take care not to drop or touch metal objects onto the battery terminals, which if contacts the battery terminals, could cause short circuits and may lead to serious personal injury. Take care to remove unwanted metal objects from the vicinity of the battery and MiniBoostPRO. Remove any personal metal adornment such as chain, watch or ring before handling the battery and MiniBoostPRO. |
| ⚠ | Only charge battery types which are supported by this charger (see “Compatible Battery Types”). |
| ⚠ | Batteries are always electrically live and must be treated with extreme caution. They can supply high, short circuit currents, even if they appear damaged or undamaged. |

## WARNING

| | |
|---|---|
| ⚠ | Electricity and water do not mix. Keep this product and your battery dry and do not expose it to water or water vapour. Do not operate this product or battery near any sort of liquid. Do not operate this product with wet hands. |
| ⚠ | Do not use this product in environments that are excessively hot, cold, dusty or humid or where it will be exposed to magnetic fields or long periods of sunshine. Such exposure may cause the product or your battery to fail, catch fire or explode. |
| ⚠ | Clean the housing of this product lightly with a dry or moist cotton cloth. Do not use alcohol, thinners, benzene or any other chemical cleaner. Do not immerse the MiniBoostPRO in water. |
| ⚠ | The MiniBoostPRO is a high precision electronic product. It contains no user-serviceable parts inside. Do not try to dismantle, modify or repair it yourself. Disassembly, service or repair by an unauthorised person will void the warranty. |
| ⚠ | Before using this product, check that cable connections to the battery are of correct polarity. |
| ⚠ | Product specifications are subject to change and improve without notice. |

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MANUAL PART **039222**
REV **7.0**


Designed by BMPRO, one of Australia's leading power solution experts, the BMPRO product range is proudly designed and manufactured in Melbourne, Australia, and represent a high-quality product that will provide years of service.

**DISCLAIMER:** BMPRO accepts no liability for any loss or damage which may occur from the improper or unsafe use of its products. Warranty is only valid if the unit has not been modified or misused by the customer.

# ABOUT THE MINIBOOSTPRO

BMPRO's MiniBoostPRO is a multi-stage DC-to-DC battery charger, that enables charging a secondary battery from solar panels and / or the towing vehicle's 12V electrical system.

Blending both the solar and auxiliary inputs, the MiniBoostPRO provides a combined maximum charging current of 30A, with a preference to solar for charging your secondary battery.

When charging, the MiniBoostPRO continually monitors primary, secondary battery and solar voltage.

## TERMINOLOGY

**Secondary battery** refers to either an auxiliary battery installed in the motor vehicle or a house battery installed in the RV.

**Primary battery** refers to a cranking battery in the motor vehicle. Connected to the alternator, it is commonly referred to as an auxiliary input.

**Bypass mode** is the mode where the primary / input AUX source of power is at the higher voltage than the secondary / output battery.

**Boost mode** is the mode where the voltage of the primary battery input source is less than the secondary / output battery.

## ADDITIONAL ACCESSORIES REQUIRED FOR INSTALLATION

The following accessories (not supplied) are required to complete installation of the MiniBoostPRO:

- 2x 40A Automotive Fuse
- 2x 2A Automotive Fuse

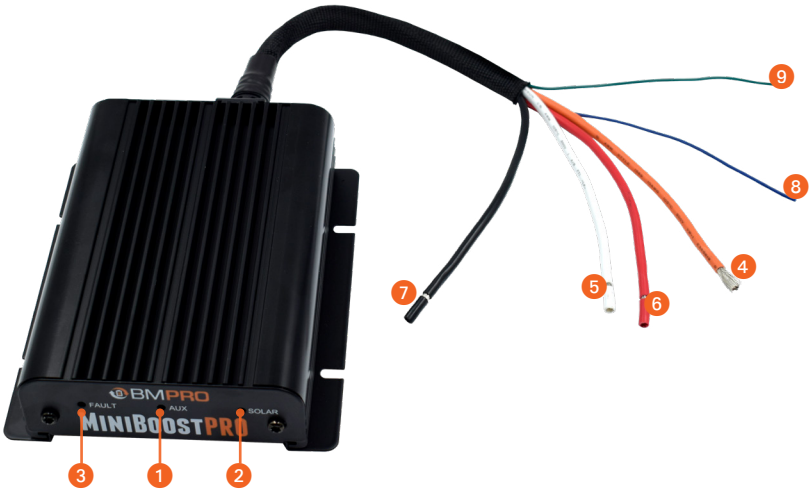
## COMPATIBLE BATTERY TYPES

The MiniBoostPRO may be used to charge 12V batteries with capacities of 50-300AH and of the following chemistries: AGM/Wet, Gel and LiFePO4 (lithium).

**⚠ WARNING**

Do not connect other types of Lithium batteries to the MiniBoostPRO.
Do not connect batteries with capacity less than 50Ah.

# DESCRIPTION OF PARTS




1. **Aux LED**

   Green LED indicates charging from primary source.

2. **Solar LED**

   Blue LED illuminates when the MiniBoostPRO charges the battery from its solar input.

3. **Fault LED**

   Red LED is a warning / fault indicator.

4. **Aux In**

   Orange cable to connect to the primary battery positive terminal.

5. **Solar In**

   White cable to connect to the solar panel positive terminal.

6. **Batt Out**

   Red cable to connect to the positive terminal of the battery to be charged (secondary).

7. **Common Negative**

   Black cable to connect to the solar, primary and the battery's secondary negative terminals.

8. **Ignition Detect**

   Blue cable to connect to the towing vehicle's ignition.

9. **Batt Chemistry**

   Green cable to configure battery chemistry and select charging parameters.

# INSTALLATION INSTRUCTIONS

Installation of the MiniBoostPRO should be carried out only by a certified installer with caravan electrical experience.

## VENTILATION AND THERMAL CONSIDERATIONS

The MiniBoostPRO may be installed in any orientation. To prevent overheating of the MiniBoostPRO, install the unit in a well-ventilated area that allows for continuous airflow around the unit. Overheating of the MiniBoostPRO will affect the optimal operation of the unit.

## MOUNTING

Securely mount the MiniBoostPRO to any suitably strong flat surface. Install the MiniBoostPRO inside your caravan or camper trailer, preferably close to the house battery.

# WIRING INSTRUCTIONS

## CABLE SIZE

Cables should be sized to carry 30A. The following table demonstrates the recommended cable size, ranging up to a total length of 15m from input to output.

| CABLE | CABLE COLOUR | MINIMUM CABLE SIZE |
|---|---|---|
| Solar In | White | 6.0mm² or 10 AWG |
| Aux In | Orange | 6.0mm² or 10 AWG |
| Batt Out | Red | 6.0mm² or 10 AWG |
| Common Negative | Black | 6.0mm² or 10 AWG |
| Ignition | Blue | 0.34mm² or 22 AWG |
| Batt Chemistry | Green | 0.34mm² or 22 AWG |

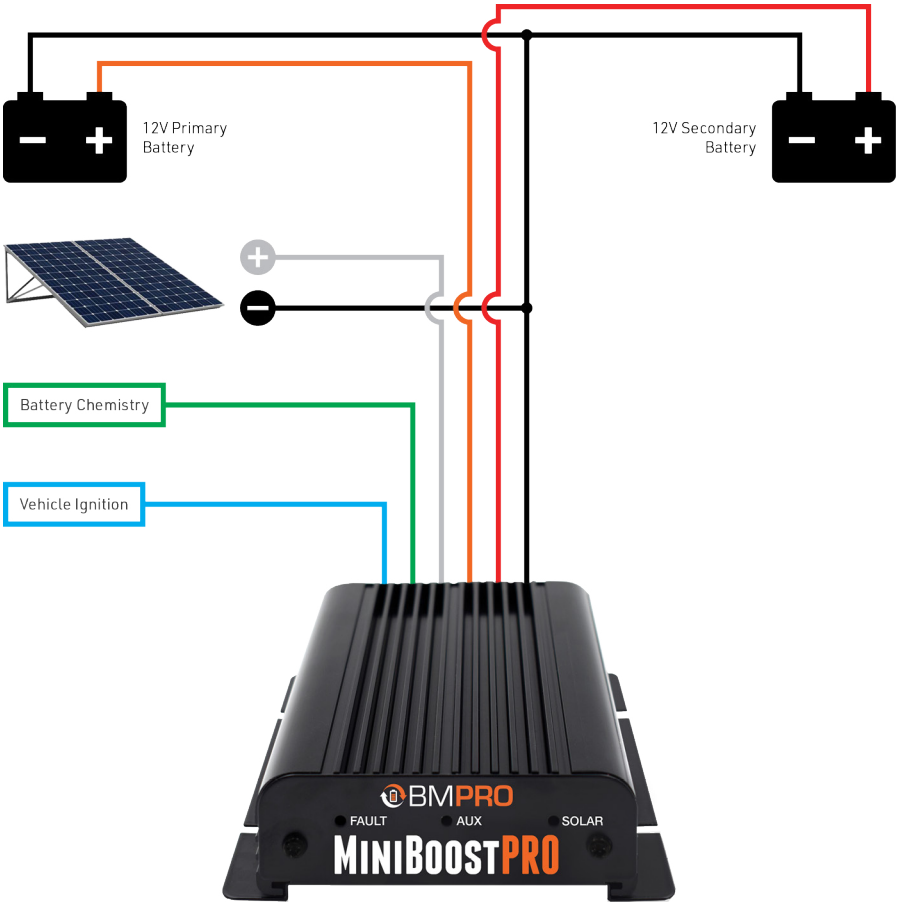
## WIRING AND CONNECTIONS

To assist with wiring, cable colour codes are labelled on the back of the MiniBoostPRO. To ensure safe and reliable wiring, wire connections should be crimped or soldered. All wire connections must be protected by heat shrink to prevent exposed wires.

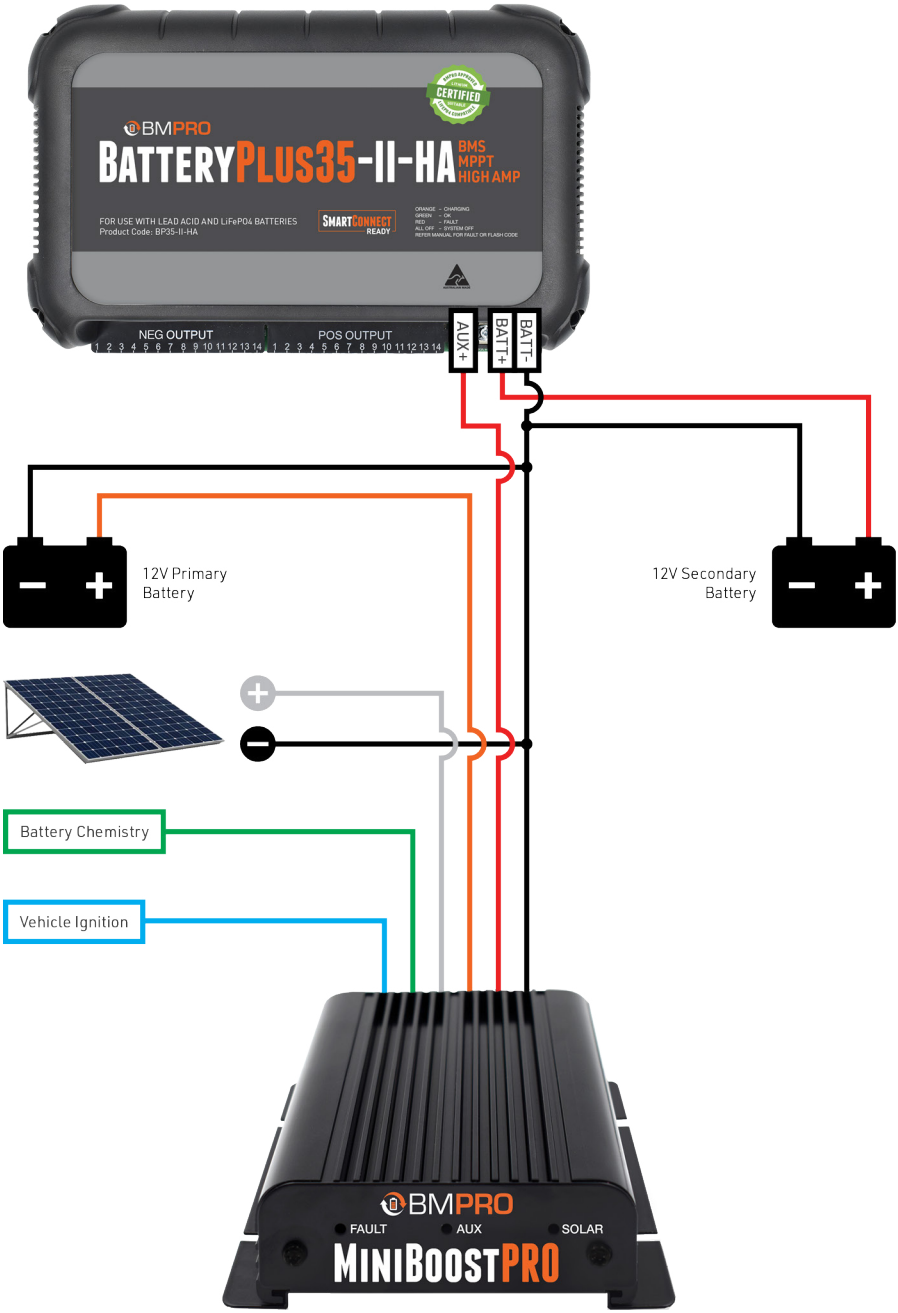
The MiniBoostPRO may be used in conjunction with a BMPRO power management system such as the BatteryPlus35-II or ASPower.

If using a power management system, connect the MiniBoostPRO's Batt Out and Common Negative cables to the positive and negative primary input. The MiniBoostPRO may be wired direct to the secondary battery via a protective fuse.

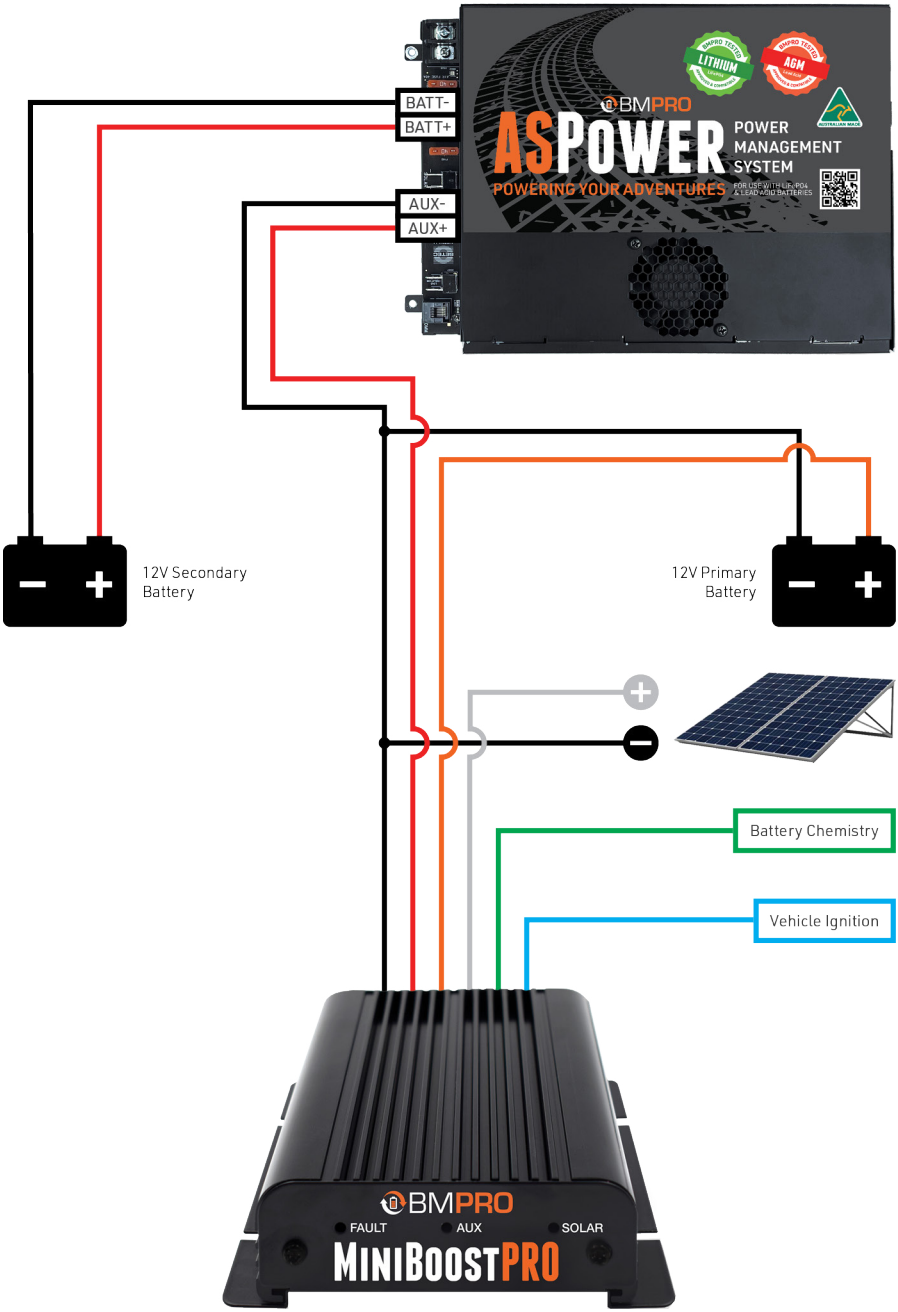
## STANDARD INSTALLATION WIRING INSTRUCTIONS



## INSTALLATION WITH BATTERYPLUS35-II WIRING INSTRUCTIONS



## INSTALLATION WITH ASPOWER WIRING INSTRUCTIONS



## FUSING

Fuse protection of the MiniBoostPRO is required at the primary positive terminals, battery positive terminals, battery chemistry selection cable and the ignition detect cable.

The MiniBoostPRO's recommended fuse for the primary positive and battery positive terminals is an automotive fuse (rating 40A) and for the battery chemistry and ignition detect cables, is an Automotive fuse (rating 2A).

The fuse must be placed as close as possible to the battery.

**⚠ WARNING**

Fuse protection is required even if no BMPRO power management system is installed.

## CHARGING DELAY

If the secondary battery voltage is between 14V and 15V, indicating that the secondary battery is being charged from another source, the MiniBoostPRO will wait 15 minutes before starting to charge.

## IGNITION DETECT

The MiniBoostPRO is equipped with an ignition detect cable, which is designed to prevent your primary battery from excessive discharge and detects when the vehicle alternator is turned on. If the ignition detects the alternator is running, the MiniBoostPRO will start charging the secondary battery when the primary battery voltage is above 12V. If the ignition is detected as off or the ignition wire is not utilised in the installation, the MiniBoostPRO will start charging when the primary battery voltage is above 12.6V.

| IGNITION | AUXILIARY VOLTAGE THRESHOLD |
|---|---|
| Off | 12.6V |
| On (+12V) | 12.0V |

**⚠ WARNING**

Do not leave the ignition cable connected to the battery positive terminal when the MiniBoostPRO is not charging.

## BATTERY CHEMISTRY SELECTION

The MiniBoostPRO's green battery chemistry cable is used to select the battery chemistry. Setting the correct battery chemistry ensures that the appropriate voltage levels are set for charging.

### Battery Chemistry Voltage Levels

| BATTERY CHEMISTRY | BULK-ABSORPTION VOLTAGE | BATTERY CHEMISTRY CABLE CONNECTION POINT |
|---|---|---|
| Gel | 14.2V | Battery Negative Terminal |
| AGM/Wet | 14.4V | Floating/Unconnected |
| LiFePO4 | 14.6V | Battery Positive Terminal |

### Selecting 12V Gel Battery

When using the MiniBoostPRO to charge a 12V Gel Battery, connect the green wire to the battery negative terminal or connect to the common negative. This will set the output voltage at 14.2V.

## Selecting 12V AGM/WET Battery

When using the MiniBoostPRO to charge a 12V AGM/Wet Battery, terminate the green wire, leaving unconnected. This will set the output voltage at 14.4V.


## Selecting 12V LiFePO4 Battery

When using the MiniBoostPRO to charge a 12V LiFePO4 Battery, connect the green wire to the secondary / output battery positive terminal. This will set the output voltage at 14.6V.

# BATTERY CHARGING

The MiniBoostPRO features a multi-stage charging profile to charge your house battery. These stages are bulk, absorption and float. This enables the charge to deliver the maximum current, until the terminal voltage has risen to the battery's pre-set level.

**⚠ CAUTION**

The MiniBoostPRO may get warm while the battery is being charged.

### Bulk

Bulk is the MiniBoostPRO's primary charging stage where approximately 80% of charging occurs. This enables the charger to deliver the maximum current, until the terminal voltage has risen to the battery's pre-set level.

### Absorption

Absorption ensures that the MiniBoostPRO's battery's voltage is kept at its pre-set level. During this stage, the current is gradually reduced to less than 2A for 2 minutes. This allows the battery to absorb more power.

### Float

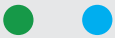
Float is the final stage of the battery charging profile. This keeps the MiniBoostPRO's battery at optimum charge, without overcharging or damaging the battery and allowing the battery to remain continuously connected to the charger.

The MiniBoostPRO returns from Float to Bulk/Absorption depending on the modes. This includes if the output current is more than 10A for more than 2 minutes or if the secondary battery voltage is below 13.1V - this normally applies when a load is detected on the secondary battery.

The charging stage is indicated by the LED flash sequence of the charging LEDs on the MiniBoostPRO.

When charging from auxiliary, the green aux LED illuminates. When charging from solar, the blue solar LED illuminates. If both the auxiliary and solar are providing the charging current, both the blue and green LED illuminate simultaneously. The green auxiliary LED will only flash every 5 seconds, if the battery is good and no sources are available for charging.

## CHARGING SEQUENCE LED INDICATORS

| SOURCE | MODE | LED | DESCRIPTION |
|---|---|---|---|
| Aux | Charging |  | Solid green light |
| | Float |  | Flashing green light |
| Solar | Charging |  | Solid blue light, flashing green light, solid red light |
| | Float |  | Flashing blue light, flashing green light, solid red light |
| Blending | Solar & Aux Charging |  | Solid blue and green lights |
| | Float |  | Flashing blue light and flashing green light |
| None | Battery Good |  | Flashing green light every 5 seconds |

## BYPASS MODE

The MiniBoostPRO will operate in bypass mode when input voltage is greater than or equal to battery voltage.

Output will shut off in bypass mode if the input voltage is higher than the voltage required for charging the battery.

# PROTECTIVE FEATURES

The MiniBoostPRO has built-in protection features:

### Spark Free Protection

If the MiniBoostPRO is not connected to a secondary battery, the unit provides prevention of sparking in the case of accidental short circuit on the output side.

### Reverse Polarity Connection Protection

In the case of a reverse polarity connection protection on either inputs or the output, the MiniBoostPRO will automatically prevent any internal damage.

### Overtemperature Protection

If the MiniBoostPRO detects higher than expected internal temperatures, it will automatically limit the charging output to protect the unit until the temperature reduces to a suitable level.

### Overload Protection

Overload protection ensures that the MiniBoostPRO cannot deliver excessive current to the secondary battery.

### Overvoltage and Undervoltage Protection

The MiniBoostPRO's overvoltage and undervoltage protection feature prevents the overcharging or excessive discharge of the primary or secondary batteries. This keeps the batteries healthy for as long as possible.

# FAULT CODES

If there is a fault with the MiniBoostPRO set-up that prevents the battery from charging, the red fault LED will illuminate and flash a code to describe the fault.

| FAULT | FLASHING SEQUENCE | SOLUTION |
|---|---|---|
| No source and secondary battery voltage <12.1V | Red Single Flash | The battery requires charging. Connect the MiniBoostPRO to auxiliary and/or solar source to begin battery charging. |
| Secondary battery voltage <8V | Red Flash x2 | The secondary battery is not connected or needs to be replaced with a healthy battery with voltage between 8 -14V. |
| Secondary battery voltage >15V | Red Flash x3 | The secondary battery is overcharged or is not a 12V battery. Check power connections to the MiniBoostPRO. |
| Auxiliary input voltage >15V | Red Flash x4 | Check the primary input source with a suitable service provider. |
| Solar input voltage >25V | Red Flash x5 | Check the solar panel's open circuit voltage is between 9 and 25V. |

**NOTE:** The solid green LED may or may not be on in addition to the red flashing LED if there is a fault. The type of fault will only be indicated by the red flashing LED.

# SERVICING AND CLEANING

This product contains hazardous voltages and energy hazards that may cause death or injury. Only qualified service personnel may service the MiniBoostPRO. Do not attempt to service the MiniBoostPRO yourself, OR dismantle, modify or repair the MiniBoostPRO yourself; this will void your warranty. If your MiniBoostPRO requires servicing, please consult your BMPRO dealer or visit teambmpro.com for assistance.

Use a dry or moist cotton cloth to lightly remove dust or dirt from the MiniBoostPRO. Do not immerse the MiniBoostPRO in water. Do not use alcohol, thinners, benzene or any other chemical cleaner as these products may degrade the housing surface.

# FAQS AND TROUBLESHOOTING

**Need more help troubleshooting your MiniBoostPRO?**

Contact our customer service team online at at **teambmpro.com/technical-support**

**Can I use the MiniBoostPRO inside my engine bay?**

The MiniBoostPRO cannot be used inside an engine bay as it is rated to IP20.

**Does the MiniBoostPRO connect to home solar panels?**

No, the MiniBoostPRO will not connect if the voltage rating of your home solar panels is over 25V.

**Can I run my appliances directly from MiniBoostPRO without any battery being connected to it?**

The MiniBoostPRO works only when the battery is connected to the output. You can connect your appliances to MiniBoostPRO, but the secondary battery will have to be connected at the same time.

**Can I cut MiniBoostPRO leads shorter for practical wiring?**

This is not recommended as this could degrade the MiniBoostPRO's functionality. Refer to recommendation of a service centre.

**Is the MiniBoostPRO housing electrically isolated?**

No, as this is due to the MiniBoostPRO's housing being physically and electrically connected to the negative terminal. Always be cautious of accidental connections from the housing to the battery positive terminal.

**At what point will the MiniBoostPRO begin solar charging?**

If the battery just been connected, the battery will begin charging from solar.

If the battery was fully charged to the float stage, it will restart solar charging once the voltage drops below 13V.

# SPECIFICATIONS

| MINIBOOSTPRO | |
|---|---|
| Auxiliary Input Voltage | 9-14.6V DC |
| Solar Input Voltage | 9-25V DC |
| Output Voltage | Gel: 14.2V<br>AGM/Wet: 14.4V<br>LiFePO4: 14.6V |
| Float Voltage | 13.6V |
| Output Current* | Auxiliary Bypass: max. 30A<br>Auxiliary Boost: max. 22A<br>Solar Charging: max. 30A (360W)<br>Blending Charging: max. 30A |
| Quiescent Current Draw | Auxiliary/Primary Battery: <25mA<br>Secondary Battery: <18mA |
| Operating Temperature | -20°C to 80°C |
| Dimensions | 160mm x 131mm x 41mm |
| IP Rating | IP20 |
| Standards | RCM Approval, EMC CISPR 11: 2015 Class B, FCC Part 15 |

*Output reduced at elevated temperature.

# WARRANTY TERMS AND CONDITIONS (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 for 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.

This warranty is provided by SETEC BMPRO Pty Ltd (ABN) ("BMPRO") for its products. Warranty benefits are applied along with any rights and remedies required by Australian State and Federal legislation that cannot be excluded. No part of this warranty excludes, restricts or modifies any State or Federal legislation relating to the supply of goods and services which cannot be excluded, restricted or modified.

## WARRANTY

BMPRO warrants that the product will be free from any faults in materials and workmanship beginning from the original date of purchase under standard application, installation, use and service conditions, subject to the exclusions and limitations detailed below. The warranty period of the product is two years.

If, before the warranty period has ended, a fault occurs with the product and BMPRO finds the product is defective in materials or workmanship, BMPRO at its discretion will subject to further rights accorded by the Australian Consumer Law to either:

- Repair the defective product
- Replace the defective product
- Provide a refund to the purchaser for the price paid at purchase for the defective product.

## WARRANTY CLAIMS

Refer to your manual before using the product. Most BMPRO products are designed to be installed by a suitably qualified installer. The products should be carefully inspected by you or your installer before installation for any visible manufacturing faults. If a product has been installed incorrectly, BMPRO accepts no responsibility on top of our consumer guarantee obligations.

1. If a fault covered by warranty occurs, the purchaser must either contact the dealer where the product was purchased within 7 days, or BMPRO at the contact details listed.
2. All warranty claims must include: (a) proof of purchase of the product; (b) complete details of the alleged fault; (c) any relevant documentation related to the fault (such as photographs or maintenance records); (d) return material authorisation (RMA) number.
3. The product must be made available to BMPRO or its authorised installer for inspection and testing within 14 days of contacting BMPRO or the dealer.
4. The reasonable cost of delivery and installation of any products or components of products that have been repaired or replaced to the place of purchase notified to BMPRO is covered by the warranty provided by BMPRO, along with the reasonable costs of removal and return of any products determined by BMPRO to be defective.
5. If, on return to BMPRO or on investigation by BMRPO, inspection and testing determines there is no fault in the product, the purchaser must pay BMPRO's reasonable costs of testing and investigating the product, as well as transportation and shipping costs.

## REGISTER A WARRANTY OR REPAIR WITH BMPRO

To register a warranty or repair with BMPRO:

1. Lodge a support request via teambmpro.com/technical-support or email customerservice@teambmpro.com
2. If agreed with the BMPRO Product Specialist team, register a warranty claim or repair via teambmpro.com/warranty-claim or email customerservice@teambmpro.com to obtain a Return Material Authorisation (RMA) number.
3. Package and send the product to:

   BMPRO Warranty Department
   19 Henderson Road
   Knoxfield, VIC 3180

   Please mark RMA details on the outside of the packaging.

4. Ensure your package also includes a copy of the proof of purchase, a complete description of the fault and your contact details including phone number and return address.

## EXCLUSIONS

This warranty will not be applicable where: (a) the product has been altered, modified or repaired by someone other than BMPRO, an authorised installer or a qualified auto electrician; (b) the product has not been installed properly by either the user or manufacturer; (c) BMPRO cannot establish a fault in the product after inspection and testing; (d) the product has been used for purposes other than that for which it was designed; (e) the fault in the product has occurred due to a failure by the purchaser to ensure proper use and maintenance of the product according to BMPRO's instructions, recommendations and specifications (including maintenance); (f) the product has been subjected to abnormal conditions, such as environmental, temperature, water, fire, humidity, pressure, stress or similar; (g) the fault has been caused by abuse, misuse, neglect or accident; (h) the fault has been caused by a power surge or other kind of fault in the supply of electricity; (i) unauthorised parts or accessories have been used on or in relation to the product; (j) the appearance of the Product has deteriorated; or (k) the fault is a result of common wear & tear.

## LIMITATIONS

No express warranties or representations are made by BMPRO other than what is set out in this warranty. The absolute limit of BMPRO's liability under this express warranty is the repair or replacement of the product or part of the product.

## CONTACT

BMPRO's contact details for warranty claims are:

SETEC BMPRO Pty Ltd
19 Henderson Road,
Knoxfield, VIC 3180
Phone: (03) 9763 0962
Email: **customerservice@teambmpro.com**

Warranty Claim and Product Repair Form:
**https://teambmpro.com/warranty-claim/**

Registering your BMPRO product is an important step to ensure that you receive all the benefits you are entitled to.

Please complete the online registration form at **https://teambmpro.com/product-registration/** for your new product today.

# LIMITED WARRANTY TERMS AND CONDITIONS (USA)

Registering your BMPRO product is an important step to ensure that you receive all the benefits you are entitled to. Please visit **teambmpro.com** to complete the online registration form for your new product today.

### What this Limited Warranty Covers

This warranty covers any defect or malfunction in your BMPRO product. Under this warranty you are entitled to have such goods replaced, repaired or refunded.

### What this Limited Warranty Does Not Cover

- This warranty does not extend to product failures or defects caused by, or associated with, but not limited to:
- Failure to install or maintain correctly, unsuitable physical or operating environment, accident, acts of God, hazard, misuse, unauthorized repair, modification or alteration, natural disaster, corrosive environment, insect or vermin infestation and failure to comply with any additional instructions supplied with the product.
- BMPRO may seek reimbursement of any costs incurred when a product is found to be in proper working order or damaged as a result of any of the warranty exclusions listed above.
- BMPRO will not be liable for any costs, charges or expenses incurred in the process of returning a product to initiate a warranty claim.

### How Long the Warranty Lasts

BMPRO warrants products against defects for a period of two years, commencing from the original date of purchase.

### Claims Process

Proof of purchase is required before the product can be deemed to be within the warranty period.

To enquire or make a claim under this warranty, please follow these steps:

A. Prior to returning a BMPRO product, please email **service@teambmpro.com** to obtain a Return Material Authorisation (RMA) number.

B. Package and send the product to:

**BMPRO WARRANTY DEPARTMENT**
**UNIT 1 821 E WINDSOR AVE**
**ELKHART IN 46514**

Please mark RMA details on the outside of the packaging.

C. Please ensure the package also includes: a copy of the proof of purchase, a detailed description of the fault and your contact details including phone number and return address.

### How State Law Applies

This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

# COMPLIANCE

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna,
- Increase the separation between the equipment and receiver,
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected,
- Consult the dealer or an experienced radio/TV technician for help.

Warning: Any changes or modifications not expressly approved by BMPRO could void the user's authority to operate this equipment.

POWERING YOUR ADVENTURES.

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teambmpro.com