



OWNER'S MANUAL

MINIBOOSTPRO



TEAMBMPRO.COM



BM PRO

POWERING YOUR ADVENTURES

With over 50 years' experience in power solutions combined with manufacturing and design facilities in Melbourne, Australia, BM PRO are the leading experts in RV power and control management.

Inspired by the great outdoors, we have created a range of rugged, smart and reliable products to power your adventures.

Our range of battery, power and RV management control systems gives you peace of mind when you are on the road, so that you can relax in even the most far flung destinations, knowing you have control over your power needs.

To learn more about the BM PRO range of products, please visit our website **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.

CONTENTS

SAFETY PRECAUTIONS	4
ABOUT THE MINIBOOSTPRO	8
TERMINOLOGY	8
ADDITIONAL ACCESSORIES REQUIRED FOR INSTALLATION	8
COMPATIBLE BATTERY TYPES	8
DESCRIPTION OF PARTS	9
INSTALLATION INSTRUCTIONS	10
VENTILATION AND THERMAL CONSIDERATIONS	10
MOUNTING	10
WIRING INSTRUCTIONS	11
CABLE SIZE	11
WIRING AND CONNECTIONS	11
WIRING INSTRUCTIONS FOR STANDARD INSTALLATION	12
FUSING	13
IGNITION DETECT	13
BATTERY CHEMISTRY SELECTION	14
BATTERY CHARGING	16
PROTECTIVE FEATURES	18
FAULT CODES	19
SERVICING AND CLEANING	20
FAQS AND TROUBLESHOOTING	21
SPECIFICATIONS	22
COMPLIANCE	24
WARRANTY TERMS AND CONDITIONS (AUSTRALIA)	26
LIMITED WARRANTY TERMS AND CONDITIONS (USA)	27

MANUAL PART **035998**
REV 5.0

Designed by BMAPRO, one of Australia's leading power solution experts, the BMAPRO range of products are proudly Australian-Made in Melbourne, Victoria and represent a high-quality product that will provide years of service.



DISCLAIMER: BMAPRO 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

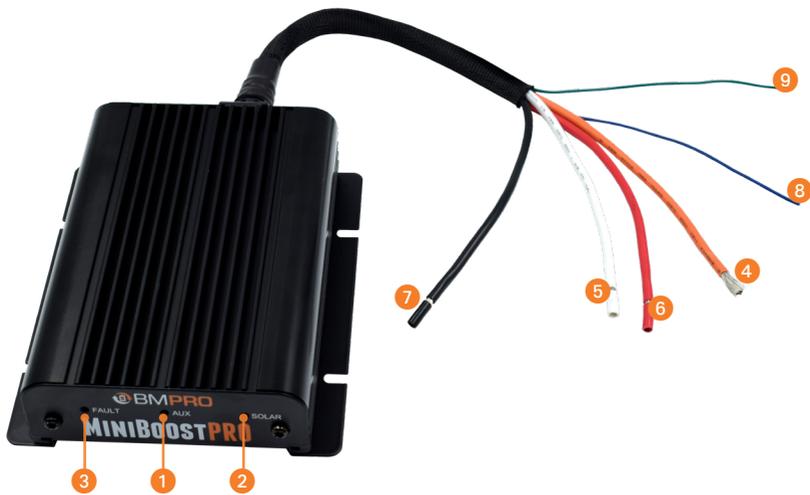


Figure 1: The MiniBoost PRO

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. Table 1 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	6.0mm ² or 10 AWG
Aux In	Orange	6.0mm ² or 10 AWG
Batt Out	Red	6.0mm ² or 10 AWG
Common Negative	Black	6.0mm ² or 10 AWG
Ignition	Blue	0.34mm ² or 22 AWG
Batt Chemistry	Green	0.34mm ² or 22 AWG

Table 1: Recommended Cable Size

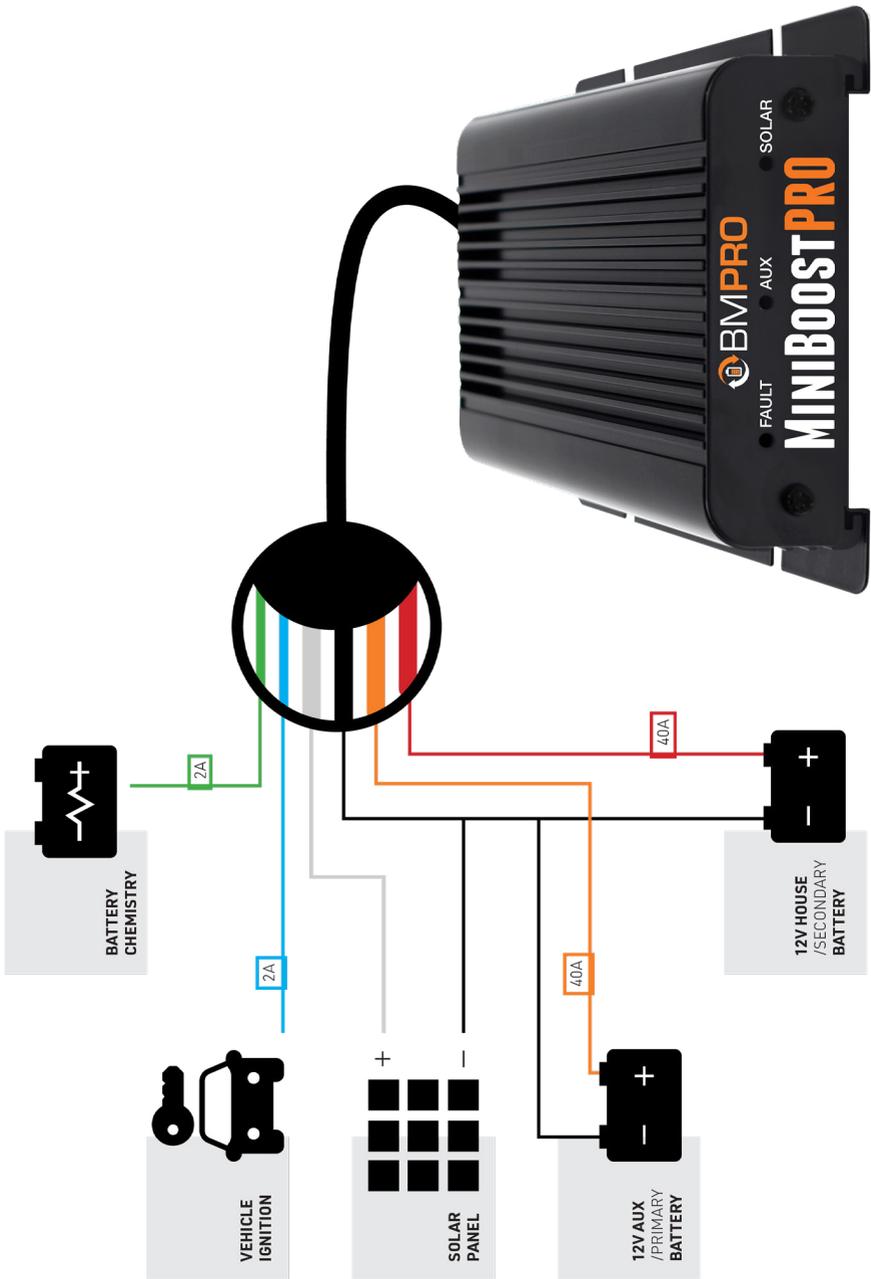
WIRING AND CONNECTIONS

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 or J35.

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.

WIRING INSTRUCTIONS FOR STANDARD INSTALLATION



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).

Users must place the fuse as close as possible to the battery.

WARNING

Fuse protection is required even if no BPRO battery management system is installed.

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 (refer to Table 2).

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

Table 2: Ignition Detect

WARNING

Do not connect the ignition cable to the battery positive terminal indefinitely 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 (Table 3).

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.



Figure 2: Selecting the 12VGel Battery

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.



Figure 3: Selecting the 12V AGM/ WET Battery

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.



Figure 4: Selecting the 12V LiFePO4

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

Table 3: Battery Chemistry Voltage Levels

BATTERY CHARGING

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



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 (Table 4).

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.

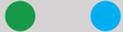
SOURCE	MODE	LED	DESCRIPTION
Aux	Charging		Solid green light
	Float		Flashing green light
Solar	Charging		Solid blue light, flashing green light, solid red light
	Float		Flashing blue light, flashing green light, solid red light
Blending	Solar & Aux Charging		Solid blue and green lights
	Float		Flashing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

Table 4: LED charging flash sequence

PROTECTIVE FEATURES

The MiniBoostPRO has the following 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.

Over Temperature 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

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

Over Voltage and Under Voltage Protection

The MiniBoostPRO's Over Voltage and Under Voltage 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 (Table 5).

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

Table 5: Fault Codes Flashing Sequence

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 teambmp.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 SPECIFICATIONS	
Auxiliary input voltage	9-15V DC
Solar input voltage	9-25V DC
Output Voltage	Gel: 14.2V AGM/Wet: 14.4V LiFePO4/: 14.6V
Float Voltage	13.6V
Output Current*	Auxiliary Bypass: max. 30A Auxiliary Boost: max. 22A Solar Charging: max. 30A (360W) Blending Charging: max. 30A
Quiescent Current Draw	Auxiliary/Primary Battery: < 25mA 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

Table 6: Product Specifications

*Output reduced at elevated temperature.

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.

WARRANTY TERMS AND CONDITIONS (AUSTRALIA)

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

1. BPRO goods come with guarantees that cannot be excluded under Australian Consumer Law. For major failures with the service, you are entitled:

- to cancel your service contract with us; and
- to a refund for the unused portion, or to compensation for its reduced value.

You are also entitled to choose a refund or replacement for major failures with goods. If a failure with the goods or a service does not amount to a major failure, you are entitled to have the failure rectified in a reasonable time. If this is not done you are entitled to a refund for the goods and to cancel the contract for the service and obtain a refund of any unused portion. You are also entitled to be compensated for any other reasonably foreseeable loss or damage from a failure in the goods or service.

2. BPRO warrants products against defects for a period of one year, commencing from the original date of purchase. Proof of purchase is required before you can make a claim under this warranty.

HOW TO PROTECT YOUR RIGHTS UNDER THIS WARRANTY:

3. The MiniBoostPRO is designed to be installed by a suitably qualified installer. You or your installer should carefully inspect the products before installation for any visible manufacturing defects. We accept no responsibility in addition to our consumer guarantee obligations where a product has been installed incorrectly.

4. 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, unauthorised repair, modification or alteration, natural disaster, corrosive environment, insect or vermin infestation and failure to comply with any additional instructions supplied with the product.

5. BPRO may seek reimbursement of any costs incurred by BPRO when a product is found to be in proper working order or damaged as a result of any of the warranty exclusions mentioned in point

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

a) Prior to returning a BPRO product, please email customerservice@teambpro.com to obtain a Return Material Authorisation (RMA) number

b) Package and send the product to:

BPRO Warranty Department
19 Henderson Road
Knoxfield, VIC 3180

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.

7. BPRO will not be liable for any costs, charges or expenses incurred in the process of returning a product in order to initiate a warranty claim.

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 teambmp.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@teambmp.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.

POWERING YOUR ADVENTURES.



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