



OWNER'S MANUAL

# TRAILSAFE



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 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 and 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](http://teambmpro.com)



# SAFETY PRECAUTIONS

Please read the Safety Precautions before installing or using the TrailSafe series. Be sure to observe all precautions without fail. Failure to observe these instructions properly may result in property damage or personal injury which, depending on the circumstances, may be serious and cause loss of life.

After completing installation of the TrailSafe, conduct a trial operation to check for faults. Please refer to **INITIAL SELF TEST FOR TRAILS SAFE** section to check for faults.



## WARNING



Correct installation is the most critical factor in ensuring the safe use of the TrailSafe. If every consideration of these instructions has been satisfied, the TrailSafe will be safe to operate.



Before wiring / servicing TrailSafe, disconnect it from all power sources.



The pull pin should be tested before use to confirm the effectiveness of contacts, particularly if exposed to salt water.



The TrailSafe 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.



It is essential the house battery is well maintained and must have at least 50% of nominal capacity available.



It is essential all wiring is protected by fusing close to any power source.

# CONTENTS

<b>SAFETY PRECAUTIONS</b>	4
<b>ABOUT THE TRAILS SAFE</b>	6
Key Features	6
What's Included	6
<b>INSTALLATION INSTRUCTIONS</b>	7
<b>WIRING INSTRUCTIONS</b>	8
Initial Self Test For TrailSafe	10
<b>IN-CAR MONITORING</b>	10
<b>LED STATUS INDICATORS</b>	11
<b>SERVICING</b>	12
<b>FAQS + TROUBLESHOOTING</b>	12
<b>SPECIFICATIONS</b>	13
<b>WARRANTY TERMS AND CONDITIONS</b>	14

MANUAL PART 034923  
REV 1.0



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

**DISCLAIMER:** BM PRO 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 TRAILS SAFE

## VEHICLE STANDARDS

Australian Design Rule 38/05 mandates that for all trailers having a Gross Trailer Mass over 2,000 kg, an emergency braking system is required on all wheels and must be capable of automatically activating should the trailer become detached from the tow vehicle. In such a situation the brakes must remain active for a minimum of 15 minutes.

## TRAILS SAFE

TrailSafe is a system designed to activate the electric brakes of a trailer, caravan (or similar) in the event of a disconnection from the towing vehicle. It utilises the house battery located on the trailer to activate the electric brake system and brake lights on the trailer in the emergency breakaway situation.

TrailSafe also provides an indication of the charge status of the house battery and checks the condition of the Pull Pin and effective activation of the brakes. This information is displayed via a multi coloured LED on the TrailSafe unit and also on the Bluetooth TrailCheck available for in-car monitoring if installed.

Mechanical Pull Pin is forcibly detached when the towing vehicle becomes separated from the trailer to detect the disconnection. Upon disconnection, the brakes and brake lights are activated as long as charge remains in the trailer battery or until the pin is replaced.

## KEY FEATURES

- ▣ Bluetooth and wired connectivity options for in-vehicle monitors
- ▣ Intelligent time-out to protect brakes
- ▣ Works off house battery – no additional battery required
- ▣ LED status indicators for full system safety check at trailer tongue
- ▣ Meets Australian regulations for break away systems on trailers over 2000kgs.
- ▣ Tests pull pin functionality as well as battery health
- ▣ Activates brake lights as well as electric brakes in the event of a break away

## WHAT'S INCLUDED

Included with this product are:

- ▣ TrailSafe
- ▣ TrailSafe Owner's Manual
- ▣ Mounting Screw

# INSTALLATION INSTRUCTIONS

## MOUNTING LOCATION

Secure TrailSafe to the right hand side draw bar of the trailer (the driver's side) approximately 300mm from the tow ball hitch. Mount horizontally on top or side of the draw bar.

## MOUNTING METHOD

Mount on the arm of the trailer using the supplied mounting screw or similar. Only one mounting point is required so that the unit can swivel in an emergency. Ensure that it is secured tightly so that it does not vibrate loose.

## MOUNTING ORIENTATION

The wires and mounting bolt should be pointing towards the rear i.e. away from the tow vehicle so that the pull pin is facing towards the tow vehicle. The pull pin will then be pulled out freely should the vehicle and trailer separate. The other end of the pull pin cord is attached to the towing vehicle by a D-shackle or similar.

# WIRING INSTRUCTIONS FOR TRAILS SAFE

The TrailSafe has multiple colored wires coming from the rear side which require connection to ensure correct functionality. As this is a safety critical system all wiring should be done by a suitably qualified Auto Electrician.

TRAILS SAFE	
<b>RED</b> (14AWG / 2.5mm <sup>2</sup> )	to the positive of the brake lights
<b>BLUE</b> (12 AWG/ 4 mm <sup>2</sup> )	to the positive of the brakes
<b>PURPLE</b> (14 AWG/ 2.5 mm <sup>2</sup> )	to the remote line
<b>WHITE</b> (14 AWG/ 2.5 mm <sup>2</sup> )	to the negative of the house battery
<b>BLACK/RED</b> (12AWG / 4mm <sup>2</sup> )	to the positive of the house battery (30A Fuse Required)
<b>RED</b> (14AWG / 2.5mm <sup>2</sup> )	to the positive of the brake lights
<b>GREEN</b> (20AWG / 0.5mm <sup>2</sup> )	To positive terminal of house battery if using LiFePO <sub>4</sub> Unconnected or negative terminal of house battery if using Lead Acid

## **WARNING**

User must connect Green wire to battery positive terminal when LiFePO<sub>4</sub> battery is used. Failure to do so may result in false battery capacity information.

**NOTE:** Larger wire sizes maybe used. Minimum shown.

Red/Black: 30A automotive-grade fuse must be located as close to the trailer battery as possible, but not before the battery charging source feed.

Wire the TrailSafe to the house battery, trailer brakes and brake lights according to Figure 1, the TrailSafe Wiring Diagram.

## **WARNING**

Failure to install the fuse may result in permanent and serious failure or damage to the TrailSafe and / or the wiring.

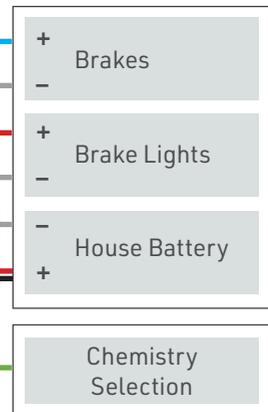


Tow Vehicle



Trailer

TrailSafe



BatteryPlus35/J35

30A Fuse

Figure 1 TrailSafe Wiring Diagram

**NOTES:** The return (negative) wires of brakes & brake lights from trailer must be wired directly to:

- ▣ One of the negative output connections on BatteryPlus35 or J35 if fitted
- ▣ To the non-battery side of a negative side shunt such as the BC300
- ▣ Directly to the battery negative in all other cases

Ensure the house battery has a suitable charging source such as a BatteryPlus35, J35 or other charging means and is functioning correctly. Refer to manufacturer's instructions for these products as required. A basic charging means such as diode from the Auxiliary to the house battery may be employed in simple systems.

An external automotive-grade fuse is required to be fitted (30 A maximum) between the TrailSafe and the battery to protect against wiring faults and issues.

## INITIAL SELF TEST FOR TRAILS SAFE

1. Before starting, ensure TrailSafe Pull Pin is in place.
2. Power up TrailSafe from 12V battery as per wiring instructions. Then the LED will display Continuous Flashing **PURPLE**, indicating 1st stage of calibration is in progress for up to 5 minutes.
3. When 1st stage is completed, the LED will display Solid **PURPLE**. User is required to pull the safety pin out. Then the LED will display Continuous Flashing **PURPLE** again, indicating 2nd stage of calibration is ongoing for up to 1 minute.
4. Upon completion, LED will display Solid **PURPLE** again. At this stage, put pull pin back in. Then one of the Status Indicators will light up. See Indicator section for details.

## IN-CAR MONITOR

If in-car monitor is used, it should be located so that it is visible to the driver. Refer to the Wireless monitor TrailCheck manual for more details.

# LED STATUS INDICATORS

## KEY LED STATUS

	CONTINUOUS FLASH		SOLID COLOUR
	FLASH ONCE		NO LIGHT

STATUS	CONDITION	SOLUTION
	TrailSafe in calibration	<ol style="list-style-type: none"> <li>1. Wait until LED goes solid <b>PURPLE</b>.</li> <li>2. If occurring after removing pull-pin, wait until indicator changes then put pull-pin back in.</li> </ol>
	Completed 1st or 2nd calibration stage	If pin is in when Solid <b>PURPLE</b> , remove pin; if pin is out when Solid <b>PURPLE</b> , put pin back in.
	Pull-pin removed before calibration stage completed	Put pull pin back in to restart.
	House battery capacity sufficient for 15mins of emergency braking operation	
	TrailSafe standby or no power	If necessary, check TrailSafe by depressing brake.
	House battery may have insufficient capacity for 15mins emergency braking operation	Check battery to ensure at least 10Ah house battery capacity available.
	TrailSafe in standby and battery may have insufficient capacity for 15mins emergency braking operation	Check battery to ensure over 10Ah house battery capacity available.
	TrailSafe breakaway switch faulty or corroded	Do not use unit. Replace unit.
	Pin out or trailer breakaway	
	House battery not detected or insufficient capacity for 15mins of emergency braking operation	Charge or replace house battery.
	TrailSafe in standby and house battery insufficient for 15mins of operation	Charge or replace house battery.
	Pull pin out when calibration starts	Put pull pin back in; wait for 1 minute or power cycle unit to restart calibration.

# SERVICING

Do not attempt to service the TrailSafe series products yourself or dismantle, modify or repair the TrailSafe series products yourself; this will void your warranty. If your TrailSafe product requires servicing, please consult your BMAPRO dealer or visit [teambmpro.com](http://teambmpro.com) for assistance.

# FAQS AND TROUBLESHOOTING

## Need more help troubleshooting your TrailSafe?

Contact our customer service team online at [teambmpro.com/technical-support/](http://teambmpro.com/technical-support/) or give us a call on (03) 9763 0962.

### When I pull the pin, TrailSafe indicator does not illuminate?

1. Check the supplied fuse on the Black/Red wire
2. Check the wiring matches the diagram
3. Ensure TrailSafe pin slot is clean of dirt
4. Ensure House Battery is charged.

### Why should I test TrailSafe before hitching to the tow vehicle?

Testing TrailSafe ensures that the house battery has sufficient capacity to operate the brakes for at least 15 minutes should the need arise.

### What is the difference between a solid green, orange and red Status Indications on the TrailSafe?

**GREEN** confirms that the battery has been detected, has been determined to have sufficient charge and no fault in the wiring to the brakes has been detected. Good to go!

**ORANGE** indicates the need for a secondary check, the battery maybe too low.

**RED** indicates that battery is not detected or doesn't have enough capacity for 15mins emergency brake operation.

It is possible that with dual axles brakes, heavy brake light loads, warm batteries, a large load on the trailer etc, that the battery is sufficient but failing to give a clear pass.

It is necessary that there is at least 10Ah of useful battery capacity remaining, which may require 20% of aged 100Ah-rated battery for this load. If any loads (e.g. lights, 12V fridges) are on in the trailer, turn these off if possible. If your trailer or caravan has a display showing remaining battery capacity this should be able to provide a useful indication that there is enough battery capacity remaining for the emergency braking function.

### Can I use a wired in-car monitor?

A wired 12VDC battery voltage indicator can be used with TrailSafe series if desired.

### When I pull the pin, the LED displays flashing RED -ORANGE?

The pull pin internal contacts may have become corroded particularly by exposure to salt water or dirt leading to the resistance building up which may cause the brakes to not operate correctly or for as long as desired.

### I have charged my house battery, but TrailSafe shows an RED LED.

If a large load is applied to the house battery, such as a fridge, the house battery terminal voltage may drop below the minimum TrailSafe threshold (due to the internal resistance of the house battery).

Switch off any loads and re-test.

### I thought it was not a good idea to remove the pin?

This is a key feature of the device and by removing the pin to test the unit it checks to ensure that the contacts inside the case are not corroded and capable of making a suitable electrical connection including wiring to the brakes. It also checks the battery is ready to function should an emergency happen.

## SPECIFICATIONS

### TRAILS SAFE SPECIFICATIONS

System Voltage	12V Nominal (not suitable for 24V systems)
Electric Brake Load	18A max
Brake Light Load	8A max
Communications	Bluetooth Low Energy (BLE 5.0)
Wired Monitor Current	30mA max
Battery Chemistry Compatibility	LiFePO4/Lead Acid
Temperature	-20°C to 60°C
IP rating	IP67
Battery Nominal Capacity	70Ah - 300Ah

# WARRANTY TERMS AND CONDITIONS

Registering your BMPRO product is an important step to ensure that you receive all the benefits you are entitled to. Please visit [teambmp.com](http://teambmp.com) to complete the online registration form for your new product today.

1. BMPRO goods come with guarantees that cannot be excluded under Australian Consumer Law. You are entitled to a replacement or refund for major failure and for compensation for any reasonably foreseeable loss or damage. You are 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. The benefits under this Warranty are in addition to your other rights and remedies under a law in relation to the goods to which this Warranty relates (the Australian Consumer Law).
2. BMPRO warrants products against defects for a period of two years, 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 TrailCheck 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. BMPRO may seek reimbursement of any costs incurred by BMPRO 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 4 of this statement.
6. 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](mailto:service@teambmp.com) to obtain a Return Material Authorisation (RMA) number
  - b. 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
  - 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. BMPRO 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.



POWERING YOUR ADVENTURES.



TEAM  
BM PRO  
.COM

BM PRO  
+61 3 9763 0962 | [sales@teambmpro.com](mailto:sales@teambmpro.com)  
19 Henderson Rd, Knoxfield VIC 3180 Australia  
[teambmpro.com](http://teambmpro.com)