



## OWNER'S MANUAL

# BATTERYPLUS35

FOR MODELS

**BP35-HA** | **BP35-PM** | **BP35-SR**





## POWERING YOUR ADVENTURES

Born by the innovative spirit of our parent company Setec, with over 50 years' experience in power solutions, and design and manufacturing facilities in Melbourne, we are the leading experts in RV power management.

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

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

To learn more about the BM PRO range of products, please visit our website [teambmpro.com](http://teambmpro.com)

MANUAL PART 033193  
REV 8.0



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Designed by BM PRO, one of Australia's leading power solution experts, the BM PRO product range is proudly designed and manufactured in Melbourne, Australia, 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.

# SAFETY PRECAUTIONS

Please read the Safety Precautions before installing or using the **BatteryPlus35**. 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.

-  Correct installation is the most critical factor in ensuring the safe use of the **BatteryPlus35**. If every consideration of these instructions has been satisfied, the **BatteryPlus35** 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. Cleaning and user maintenance should not be performed by unsupervised children.
-  Ensure that the product is well ventilated and that if the product has a fan, the fan is not covered or obstructed.
-  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 and remove unwanted metal objects from the vicinity of the battery and **BatteryPlus35**. Remove any personal metal adornment such as chain, watch or ring before handling the battery and **BatteryPlus35**.
-  Do not replace a damaged mains power cord. If the power cord is damaged, the product must be discarded.
-  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.
-  Before servicing a battery, disconnect the power supply from all power sources.
-  Only charge battery types which are supported by this charger (see "Compatible Battery Types")
-  Do not allow water or other liquids to enter the power supply area.
-  Do not drop or vigorously shake the product as this may cause damage. Do not shock the product, its accessories or batteries as this may cause the product or battery to fail, catch fire or explode.
-  Stay away from magnetic equipment. Radiation may erase the information stored on this product causing it to become inoperative.
-  Please note that your battery can only reach top performance level only after it has been fully charged and discharged two or three times.
-  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.
-  Only use this product with the supplied power cable and with batteries or accessories recommended in this manual. Use of other batteries or accessories not recommended in this manual may cause damage to the unit and will void the warranty.
-  The **BatteryPlus35** 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. To protect against accidental short circuit, ensure that the shrouding supplied with the batteries are always fitted to the battery terminals.
-  Consult caravan dealer or qualified personnel before servicing your battery.
-  Do not install this product in the same compartment where flammable materials, such as petrol is stored.
-  Product specifications are subject to change and improve without notice.

# ABOUT THE BATTERYPLUS35

BMPRO's **BatteryPlus35** is a battery management system designed specially for use in recreational vehicles. The **BatteryPlus35** operates from 100 to 240V AC mains power supply, towing vehicle auxiliary and solar panel to provide 35A of current to simultaneously power caravan loads and charge the caravan battery.

The **BatteryPlus35** is available is a range of models to suite any RV battery management needs.

FEATURE	BP35-PM	BP35-SR	BP35-HA
In-built Solar MPPT	✗	✓	✓
Solar Connection	Requires External Regulator	Direct to <b>BP35-SR</b>	Direct to <b>BP35-HA</b>
Lithium (LiFePO <sub>4</sub> ) Charging	✗	✗	✓
Maximum Charging Current	20A	20A	30A

**Table 1:** Comparison of features for the models in the **BatteryPlus35** range

## WHAT'S INCLUDED

Included with this product are:

- ☐ **BatteryPlus35** Battery Management System
- ☐ **BatteryPlus35** + Owner's Manual

## OPTIONAL ACCESSORIES

To get the most of your **BatteryPlus35** it may be used with the following products (sold separately) from the BMPRO range:

- ☐ **BC300 + CommLink** External Shunt for integration of additional accessories and high current loads such as inverters
- ☐ **RVView** Battery Monitor to monitor battery parameters and charge sources
- ☐ **Trek** Battery Monitor to gain greater insights into battery usage, the ability to monitor water tank levels and control water pumps
- ☐ **Odyssey + OdysseyLink** to monitor battery usage, caravan features (tanks and temperature) and control caravan loads from an in-built monitor
- ☐ **MiniBoost** DC-to-DC charge-booster for RV applications

COMPATIBLE BATTERY TYPES

The **BatteryPlus35** is rated to charge battery banks of up to 600Ah in capacity and of the following battery types:

	BATTERY	BP35-PM	BP35-SR	BP35-HA*
Lead Acid	Valve-Regulated (VRLA)	✓	✓	✓
	Absorbed Glass Mat (AGM)	✓	✓	✓
	Gel	✓	✓	✓
Lithium	LiFePO4	✗	✗	✓

**Table 2:** Batteries compatible for use with the **BatteryPlus35**

\* By default, the **BP35-HA** is configured to charge lead acid batteries



The **BP35-HA** is designed for use with LiFePO4 Lithium batteries only. Do not connect other types of Lithium batteries to the **BP35-HA**.

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# BATTERYPLUS35



Figure 1: The BatteryPlus35

## ① MAINS CABLE

The **BatteryPlus35** is pre-cabled with a permanent mains power supply cord for use with 240V or 110V input power.



Do not replace a damaged power supply cord. If the power cord is damaged, the **BatteryPlus35** must be discarded. Ensure that the AC mains source always has an earth terminal.

## ② LOAD TERMINAL BLOCK – COMMON NEGATIVE CONNECTION

Negative wire connection point for the caravan's 12V loads.

## ③ LOAD TERMINAL BLOCK – POSITIVE CONNECTION

Positive wire connection point for the caravan's 12V loads.

Terminal 1 will not turn off when ECO mode is activated and is thus ideal for connecting lite loads that benefit from continual power such as electric step or radio.

## ④ SOLAR INPUT

## ⑤ AUXILIARY INPUT

## ⑥ BATTERY INPUT

**7 REMOTE SWITCH TERMINAL BLOCK (RSW)**

To connect the caravan’s remote switch. This switch is used to enter Storage Mode and power off all outputs (load terminal block and CAN bus) on the **BatteryPlus35**.

If the switch is activated and the **BatteryPlus35** is connected to a charging source, the **BatteryPlus35** will enter ECO mode. Terminal 1 on the load terminal block and CAN bus will still receive power.

Battery charging is not affected by use of the RSW.

As the caravan loads are no longer powered, activating the RSW to enter Storage Mode is a convenient way to save remaining power of your battery if you are on the road and have limited ability to charge the battery. When charging, Storage Mode ensures that all available charging current is dedicated to charging your battery.

**8 LOAD OUTPUT STATUS INDICATOR**

LED bank indicating the operational status, one for each of the load outputs on the **BatteryPlus35** Load Terminal Block.

The LED bank is located inside of the **BatteryPlus35** unit, and to view the LED, one must be directly above the **BatteryPlus35**.

LED COLOUR	LOAD OPERATIONAL STATUS
GREEN	Load operating normally
RED	Fault with load
OFF	Load is off

Table 3: Load Output Operational Status Indications

**9 SYSTEM STATUS INDICATOR**

Indicates the operational status of the **BatteryPlus35**.

**10 CAN BUS COMMUNICATION CONNECTOR**

To connect to and power BMPRO accessories (**BC300 + CommLink** External Shunt or **OdysseyLink**) or monitors (**RVView** or **Trek**).

**11 12 NOT IN USE**



# INSTALLATION INSTRUCTIONS

## REPLACING BATTERIES



Before using a battery other than that which was installed at the caravan dealership, consult with the battery manufacturer for a detailed description of the installation, uses and maintenance of the battery. Verify that the type and capacity of the battery or batteries used are compatible for use with the **BatteryPlus35**.

Figure 2 details connection of the caravan battery to the **BatteryPlus35**.

After fitting a new battery to the **BatteryPlus35**, make sure that it is configured in your battery monitor.

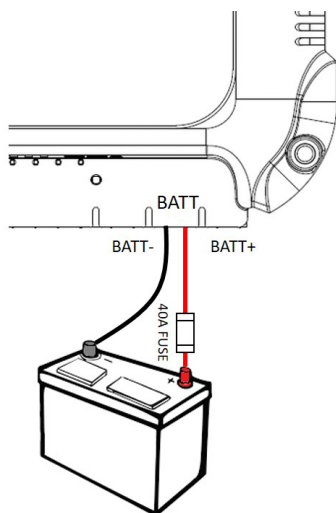
Correctly configuring the battery capacity and profile will ensure that the **BatteryPlus35** will select the best charging parameters for the caravan battery in use, and the software accurately estimates battery usage.



Sparks have the potential to cause an explosion should combustible gases be present. The following procedures are designed to minimise the risk of spark generation when connecting or disconnecting the battery. The positive terminal of the battery must not be connected to the chassis.



Do not install battery in the same compartment where flammable material, such as petrol, is stored.



**Figure 2:** Wiring the caravan house battery to the **BatteryPlus35**, compatible for all **BatteryPlus35** Models

To protect against short-circuits and reversed battery connections, install a 40A fuse, as close as possible to the battery's positive terminal.

## DISCONNECTING A BATTERY FROM THE BATTERYPLUS35

To disconnect a battery from the **BatteryPlus35**:

1. Power off all loads connected to the **BatteryPlus35**, the easiest way is with the switch connected to the **BatteryPlus35** RSW input
2. Turn off and remove all power sources (mains/solar/AUX) to the **BatteryPlus35**
3. Disconnect the battery's negative (black) terminal from the **BatteryPlus35** Batt- connection point
4. Disconnect the battery's positive (red) terminal from the **BatteryPlus35** Batt+ connection point

## CONNECTING A BATTERY TO THE BATTERYPLUS35

To connect a battery to the **BatteryPlus35**:

1. Power off all loads connected to the **BatteryPlus35**, the easiest way is with the switch connected to the **BatteryPlus35** RSW input
2. Turn off and remove all power sources (mains/solar/AUX) to the **BatteryPlus35**
3. Connect the battery's positive (red) terminal to the **BatteryPlus35** Batt+ connection point
4. Connect the battery's negative (black) terminal to the **BatteryPlus35** Batt- connection point

## CONNECTING MULTIPLE BATTERIES

Before connecting multiple batteries in parallel to the **BatteryPlus35**, check that all batteries are:

1. Of the same type, for example, deep cycle AGM battery
2. Of the same capacity, for example, 100Ah
3. By the same manufacturer
4. Fully charged
5. Of the same age-never use batteries that differ in age

The recommended wiring for connecting multiple batteries in parallel to the **m** is given in Figure 3.

Depending on system requirements, a qualified auto-electrician may wire the batteries differently.



**Figure 3:** Recommended wiring for connecting batteries in parallel.

# USING YOUR BATTERYPLUS35

## INPUT POWER SOURCES

The **BatteryPlus35** may be powered from auxiliary, mains and solar input sources. When multiple inputs are available to the **BatteryPlus35**, the **BatteryPlus35** uses power as specified in the tables below to provide the current to simultaneously power caravan loads and charge the caravan battery.

INPUT SOURCE TO BatteryPlus35	POWER SOURCE
AUX + Mains	Mains
AUX + Solar	AUX/Solar Blending
AUX + Mains + Solar	Mains/Solar Blending
Mains + Solar	Mains/Solar Blending

Table 4: Input Power Sources to the **BP35-PM**

INPUT SOURCE to BatteryPlus35	POWER SOURCE
AUX + Mains	Mains
AUX + Solar	AUX/Solar Blending
AUX + Mains + Solar	Mains
Mains + Solar	Mains

Table 5: Input Power Sources to the **BP35-HA** and **BP35-SR**

### Auxiliary



To prevent your car battery from discharging when the vehicle's ignition is off, please disconnect the auxiliary input to the **BatteryPlus35** whenever the car is not running.

The auxiliary input is designed for use with 12V DC power sources. The voltage of the DC power source connected to the auxiliary input must not exceed 14.8V.

Fuse protection is required at the auxiliary positive input. The rating on this protective fuse must not exceed 30A

### Mains

The **BatteryPlus35** mains power cord can accept power from either a 110V or 240V voltage outlet.

## Solar Input on the BP35-PM



DO NOT connect solar panels directly to the **BP35-PM** solar input terminals.

Connection of solar panels to the **BP35-PM** must always be through an external regulator. The external regulator may either be a Maximum Power Point Tracker (MPPT) regulator or Pulse Width Modulator controller.

Always consult with manufacturer's specifications before choosing an external regulator to fit between your solar panels and the **BP35-PM**, ensuring that:

1. The solar regulator output does not exceed 30A, and
2. The charging profile of the solar regulator is suitable for the battery in use

## Solar Input on the BP35-HA and the BP5-SR

The **BP35-HA** and the **BP35-SR** both feature an in-built MPPT charger. This enables solar panels to be connected directly to the **BP35-HA** or **BP35-SR** without the need for an external regulator.

The MPPT charger supports the use of standard 12V solar panels up to a total of 450W.

## BATTERY CHARGING AND MANAGEMENT WITH THE BATTERYPLUS35

The **BatteryPlus35** can deliver up to 35A to simultaneously power loads and charge the caravan battery, with a maximum charging current of 20A for the **BP35-PM** and **BP35-SR** and 30A for the **BP35-HA**.

The maximum charging current will be reduced if the loads present are drawing significant current and as the battery approaches full charge. To ensure that the caravan battery is charged by the maximum charging current, switch off non-essential loads.

## Auxiliary Charging

When charging from auxiliary, the **BatteryPlus35** monitors the battery voltage level and charges as needed. Auxiliary charging is enabled only when the auxiliary voltage exceeds the battery voltage by at least 0.5V.

## Mains Charging

When charging the battery from mains, the **BatteryPlus35** applies a multi-stage charging algorithm. Further details can be found in the Appendices.

## Solar Charging with the BP35-PM

Battery charging depends on the solar regulator used to connect the solar panels to the **BP35-PM**.

### Solar Charging with the BP35-HA and BP35-SR

When charging the battery from solar, the **BP35-HA** and **BP35-SR** applies a multi-stage charging algorithm.

The **BatteryPlus35 (HA and SR)** will use solar as a charging source is the voltage generated by the solar panel is greater than 17.5V for at least two minutes.

### Battery Health Preservation

The **BatteryPlus35** preserves battery health by preventing the battery from excessive discharge. The **BatteryPlus35** will start a two-stage shutdown or Low Voltage Disconnect (LVD), powering down the **BatteryPlus35** outputs. This is to conserve remaining battery capacity until the battery can be charged.

LVD MODE	LEAD ACID	LiFePO4 (BP35-HA ONLY)
ECO Mode	10.5V	12.0V
Storage Mode	9.8V	11.5V
Recovery	12.8V	13.8V

**Table 5:** LVD Mode voltage thresholds

The **BatteryPlus35** will enter the two stages of LVD, ECO Mode and Storage Mode, when the caravan’s battery voltage falls below the LVD thresholds.

### ECO MODE

The **BatteryPlus35** will provide power to the CAN bus. This allows you to continue to monitor battery consumption from your battery monitor. However, power to the load terminal block will be turned off (except for terminal 1) and you will not be able to use your battery monitor to power caravan loads.

To exit ECO Mode, start battery charging. The **BatteryPlus35** will exit ECO Mode when the battery charges to the Recovery voltage. Upon exit of ECO Mode, the **BatteryPlus35** will automatically return to its previous state of operation.

When in ECO Mode you may temporarily turn on caravan loads for a short time by cycling the switch connected the **BatteryPlus35’s** RSW input. This feature allows you to retract slide-outs or electric steps should you need to pack your caravan. If a battery monitor is connected, this may also be done by pressing the Battery button.

## STORAGE MODE

Power to load output terminal 1 and the CAN bus will now be turned off; meaning no communication or power to the accessories connected to the **BatteryPlus35** CAN bus.

To exit Storage Mode, start battery charging. The **BatteryPlus35** will exit Storage Mode when the battery charges to the Recovery voltage.

When in Storage Mode you may temporarily turn on caravan loads for a short time by cycling the switch connected the **BatteryPlus35's** RSW input.

### Heavily Discharged Batteries (Lead Acid)

The **BatteryPlus35** will not charge heavily discharged lead acid batteries.

In normal use, and with the **BatteryPlus35** battery health preservation, batteries should never become heavily discharged.

If your battery is heavily discharged, disconnect it from the **BatteryPlus35** and charge with a stand-alone charger. Reconnect the battery once the battery voltage has recovered to normal levels.

### Heavily Discharged Batteries (LiFePO4) (BP35 Model HA only)

The **BP35-HA** can recover and charge a heavily discharged LiFePO4 battery. The internal Battery Management System (BMS) of a LiFePO4 battery will turn off if it detects that the battery is heavily discharged. The **BP35-HA** will provide the voltage to restart the LiFePO4 battery's BMS and then commence charging of the LiFePO4 battery.

## USING THE BATTERYPLUS35 AS A POWER SUPPLY (BATTERY-LESS OPERATION)

The **BatteryPlus35** will act as a power supply if the following conditions are met:

1. A battery is not connected to the **BatteryPlus35**, and
2. The **BatteryPlus35** is configured to charge Lead Acid batteries, and
3. The **BatteryPlus35** is connected and powered from mains, or
4. The **BatteryPlus35** is connected and powered from AUX input

Power Supply mode allows you to control and power your caravan's loads directly from mains or AUX without the need to connect the caravan battery. When powered from the mains, the **BatteryPlus35** provides an output voltage of 12.8V. When powered from an AUX input, the output voltage will vary depending on the AUX input voltage.

This mode of operation is unavailable with a solar power source.

## FAULT PROTECTION

### Electronic Load Fuse Protection

Each load output is protected by an internal electronic fuse. Electronic fuses are auto-recoverable and eliminate the need for the user to replace a blown fuse.

The electronic fuse will act if the **BatteryPlus35** detects a current greater than the current rating of the terminal and the corresponding LED in the Load Output Status Indicator on the **BatteryPlus35** will flash red.

The LED indicators have a narrow viewing window. To view the LED colour clearly, one must be directly above the LED indicators.

The **BatteryPlus35** will power off the faulty load and resume normal operation once the fault has been rectified.

### Over-Temperature, Over-Voltage and Short Circuit Overload Protection

The **BatteryPlus35** provides automatic protection for over-temperature, over-voltage and short circuit overload situations.

If any of these situations are detected, the **BatteryPlus35** will shut down and automatically attempt a restart every 30 seconds until the fault is removed.

# SERVICING, MAINTENANCE AND STORAGE

## SERVICING

The **BatteryPlus35** contains hazardous voltages and energy hazards that may cause death or injury. Only qualified service personnel may service the **BatteryPlus35**. Do not attempt to service the **BatteryPlus35** yourself, OR dismantle, modify or repair the **BatteryPlus35** yourself; this will void your warranty.

If your **BatteryPlus35** requires servicing other than what is stated in this Owner's Manual, please consult your BMPRO dealer.

## MAINTENANCE

Use a dry or moist cotton cloth to lightly remove dust or dirt from the **BatteryPlus35**. Do not use alcohol, thinners, benzene or any other chemical cleaner as these products may degrade the housing surface. Do not allow any liquids to enter the housing.

Be sure to turn off all power sources to the **BatteryPlus35** and disconnect the battery before cleaning.

## STORAGE

Once your adventure is over be sure to charge the caravan's battery and power off loads. Use the switch connected to the **BatteryPlus35** RSW input to enter Storage Mode and power off all loads.

When not in use, it is recommended that you recharge the caravan's battery, ideally monthly, or every three to six months. Regular recharge prevents the battery from becoming heavily discharged-a condition which can significantly shorten the battery's lifespan.



# FAQS AND TROUBLESHOOTING

Need more help troubleshooting your BatteryPlus35? Contact our customer service team online at [teambmpro.com/technical-support](https://teambmpro.com/technical-support) or give us a call on (03) 9763 0962.

## BATTERY

**I've fitted a battery to the BatteryPlus35, but it's not detected by my BMPRO battery monitor?**

Check the following:

1. Battery connections are tight and not loose or corroded
2. Battery polarity, red lead-positive, black lead-negative
3. The dealership fitted in-line fuse with the caravan battery is fitted and not blown. Correct value is 40A.

## CARAVAN LOADS

**I think one of my loads is not receiving power?**

The load may be faulty, activating the protective electronic fuse and turning the load off. If this is the case, the Load Status Indicator LED for that load will be red. Should you encounter any faulty loads, please contact your caravan dealership.

**None of my loads appear to be powered but I can still use my battery monitor?**

All loads will power down, but the battery monitor will still be in use if the **BatteryPlus35** was put into ECO Mode. The **BatteryPlus35** will be put into ECO Mode if:

1. The user pressed the Battery icon on their battery monitor.  
Check to see that Battery icon on your monitor has been pressed, thus turning power off to the caravan loads.
2. The **BatteryPlus35** has entered ECO Mode and to conserve remaining battery voltage will disable power to caravan loads.  
Connect the **BatteryPlus35** to a power source and begin battery charging.

## None of my loads appear to be powered and the screen on my battery monitor has turned off?

All loads, including any battery monitor in use with the **BatteryPlus35** will power down if the **BatteryPlus35** was put into Storage Mode. The **BatteryPlus35** will be put into Storage Mode if:

1. The user activated the switch connected to the **BatteryPlus35** RSW input. This turns off power to all caravan loads and accessories connected to the **BatteryPlus35** CAN bus such as your battery monitor.

Check that the switch has not been activated.

2. The **BatteryPlus35** has entered Storage Mode and to conserve remaining battery voltage will disable power to all caravan loads and accessories connected to the **BatteryPlus35** CAN bus.

Connect the **BatteryPlus35** to a power source and begin battery charging.

## SOLAR

### Solar Output Appears to be Lower than Expected

If the battery is close to fully charged, the **BatteryPlus35** will periodically turn off solar to protect the batteries from overcharging. As a result, you may see less output on your solar display.

The following tips will also make sure you are getting the most of your solar set-up:

1. Make sure your solar panels are clean

For optimal performance of your solar panels, regularly clean them (when cool) with warm, soapy water.

2. Consider the location of your caravan/RV

A shadow (for example from trees, buildings and even other accessories on the roof of your caravan) across any part of the solar panel can reduce the panel performance by up to 80%.












3. The time of day and time of year is important as well.

In some parts of the year (especially in southern parts of Australia) the sun will never be directly overhead, so your solar output will be reduced-sometimes by up to 50%.

# APPENDICES

## BATTERYPLUS35 OPERATIONAL STATUS INDICATOR

The following details the operational status of the **BatteryPlus35**, as shown by the coloured flash of the LED Status Indicator on the **BatteryPlus35**.

		Colour Code	Flashing Status
Orange: Charging	AC Charging		On, Solid
	Low Battery Voltage		Flashes, 1 Time
	BP35-PM		Flashes, 2 Times Quickly
	Solar Charging		
	BP35-SR & BP35-HA		
	Solar or Aux/Solar Charging		Flashes, 3 Times Quickly
	Aux Charging		
	BP35-PM		
Green: OK	Solar/Aux Charging		
	Battery OK, AC available		On, Solid
	Battery OK, no sources available		Flashes, 1 Time
	BP35-PM		Flashes, 2 Times Quickly
	Battery OK, solar available		
	BP35-SR & BP35-HA		
Red: Error	Battery OK, solar or Aux/ Solar available		Flashes, 3 Times Quickly
	Battery OK, Aux available		
	High Temperature Fault		
	Battery Fault		Flashes, 2 Times Quickly
	Solar Fault		Flashes, 3 Times Quickly
OFF	Other Fault		Flashes, 4 Times Quickly
	BatteryPlus35 Powered Off		Off

# BATTERY CHARGING MANAGEMENT ALGORITHM

The following describes the Battery Charging Management Algorithm used by the **BatteryPlus35** when charging the caravan battery from a mains power source and by the **BP35-HA** and **BP35-SR** with solar charging. The **BatteryPlus35** will operate as described when the caravan loads are connected directly to the **BatteryPlus35** and not the caravan battery.

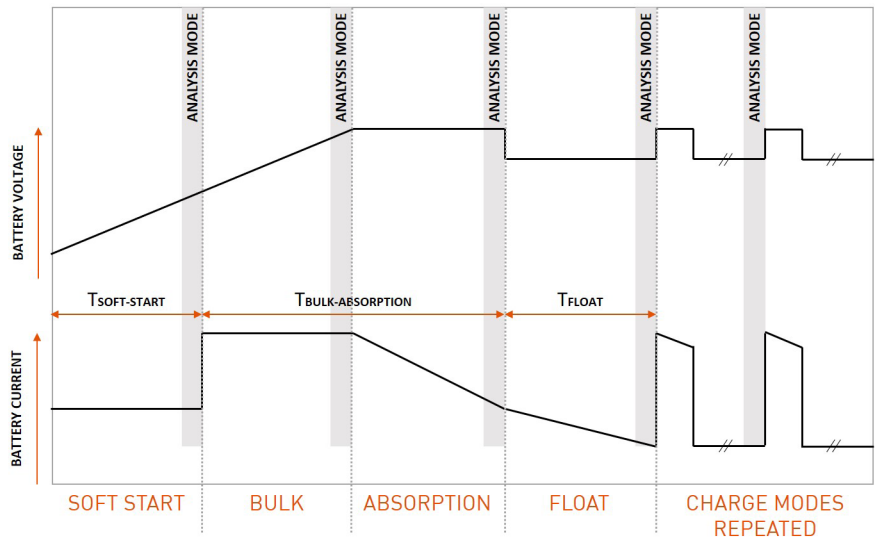


Figure 4: BatteryPlus35 Battery Charging Management Algorithm

Battery Capacity	Soft Start	Bulk-Absorption	Float
≤ 100AH	6 Hours	5 Hours	6 Hours
150AH	6 Hours	7.5 Hours	6 Hours
200AH	6 Hours	10 Hours	6 Hours
250AH	6 Hours	12.5 Hours	6 Hours
≥ 300AH	6 Hours	15 Hours	6 Hours

Table 6: Timeout for each charging mode, based on battery capacity

Charge Mode	Voltage Limit (V)		Current Limit (A)		
	Lead Acid	LiFePO4 (BP35-HA Only)	BP35-PM	BP35-SR	BP35-HA
Soft Start	12.3	12.3	10	10	10
Bulk	14.4	14.6	20	20	30
Absorption	14.4	14.6	20	20	30
Float	13.6	13.6	10	10	10

**Table 7:** Battery charging management algorithm voltages and currents

The **BatteryPlus35** intelligently controlled charging algorithm, automatically sets charging parameters so that the caravan battery will maintain the best state of health. The charging modes include:

### SOFT START MODE

Charging current is maintained at 10A until the battery voltage reaches 12.3V or soft start timeout (see table 6) occurs.

### BULK MODE

Charging current is maintained at the Bulk current limit until the battery reaches the Bulk voltage (see table 7), after which charging proceeds to Absorption Mode

### ABSORPTION MODE

Battery is charged at Absorption voltage until the current drops below 2A or Bulk-Absorption timeout occurs.

### FLOAT

Charging current is limited to 10A to keep the battery level topped up. Charging will remain in Float for 6 hours. After Float timeout, the **BatteryPlus35** will enter back into Bulk-Absorption modes.

# SPECIFICATIONS

	BP35-PM	BP35-SR	BP35-HA
Input Voltage Range	110-240V AC ± 10%, 50-60Hz		
Input Surge	< 40A (cold start)		
Output Current	35A (Load + Battery Current)		
Factory Set Voltage	13.65V (Float Voltage)		
Output Ripple Voltage	<150mV		
Battery Current Limit	max. 20A	max. 20A	max. 30A
Low Voltage Disconnect (Lead Acid)	10.5V ± 0.2V		
Battery Connect after LVD (Lead Acid)	12.8V ± 0.2V		
Low Voltage Disconnect (LiFePO <sub>4</sub> )	12.0V ± 0.2V		
Battery Connect after LVD (LiFePO <sub>4</sub> )	13.8V ± 0.2V		
Battery Drain	<15mA (when in Storage Mode)		
AC/DC Efficiency	>83%		
Cooling Fan	Thermally Controlled		
Solar Output Current		30A (nominal)	
Solar Start Voltage		17.5V	
Solar Input Voltage (after start-up)		15-25V	
Ambient Temperature	0-50 °C		
Communication	Communication bus available		
Weight	2kg		
Standards	Safety: IEC60335-2-29, IEC62109-1 EMC: CISPR 14 Approvals: RCM		

# WARRANTY TERMS AND CONDITIONS

Registering your BMPRO product is an important step to ensure that you receive all of the benefits you are entitled to. Please visit [www.teambmpro.com](http://www.teambmpro.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 **BatteryPlus35** is designed to be installed by a suitably qualified installer. You or your installer should carefully inspect the product 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 one or more 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 [customerservice@teambmpro.com](mailto:customerservice@teambmpro.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.



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