BMPRO
A SETEC Brand

SYSTEM MANUAL

BATTERYPLUS35

INCLUDING

TREK + RVVIEW

www.teambmpro.com

Accessories

Accessories provided with this product are:

System Manual

About the BatteryPlus35 Power Supply

The **BatteryPlus35** is a smart charger with a distribution system which has been designed for use in recreational vehicles. The unit operates from 100VAC to 240 VAC and provides an isolated DC output at 35A maximum (derates to 32A at high ambient temperature) for powering the loads, out of which a limited amount of current is reserved for charging the caravan battery. All the necessary protection and operating features for the load and battery are provided. **BatteryPlus35** uses electronic fuses to protect the wires connected to the loads.

A DC input is also provided to enable battery charging and powering of the load from an external source, such as a car.

BatteryPlus35 has a solar input. Solar panels can be connected directly to **BatteryPlus35SR** or **BatteryPlus35HA**, an external regulator must be installed for **BatteryPlus35PM**, See table below.

	BatteryPlus35PM	**BatteryPlus35**SR	**BatteryPlus35**HA
Solar MPPT	No	Yes	Yes
Solar Input	External Regulator required	Direct Solar Panel connection	Direct Solar Panel connection
Battery Chemistry	Lead-Acid Only	Lead-Acid Only	Lead-Acid LiFePO4
Absorption Charging Current Max	20A	20A	30A
AX-Solar Blending	Yes	Yes	Yes

MPPT- Maximum Power Point Tracking

The unit is fully enclosed ready for direct wall mounting. All connections are at the base of unit providing convenient wiring and installation.

Note: When a **BatteryPlus35PM** is powered for the first time, the red LED will blink for 30s, then resume normal LED pattern.

Other Accessories that are sold separately:

Trek

Displays Battery voltage, Battery charging and discharging currents, Auxiliary and solar currents, Battery charge status, Time remaining to discharge, Level indication of up to 4 water tanks, Time am/pm, Water pump status and Battery on/off status. It also features Back light which can be set as a night light, Button to control 2 water pumps through **BatteryPlus35**, Button to disconnect the battery from the loads.

RVView

Display that shows System voltage, Input and output current, Battery charging and discharging indicator, Power Source – Mains, Solar or Car, Warning indicator and Battery charge status.

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CONTENTS

Trek

RVView

Manual Part #030333

The BMPRO **BatteryPlus35 (BatteryPlus35), Trek** and **RVView** are proudly Australian-made products manufactured in Melbourne, Australia. Designed by Setec, one of Australia's leading power solutions experts. They represent a high quality product that will provide years of service.

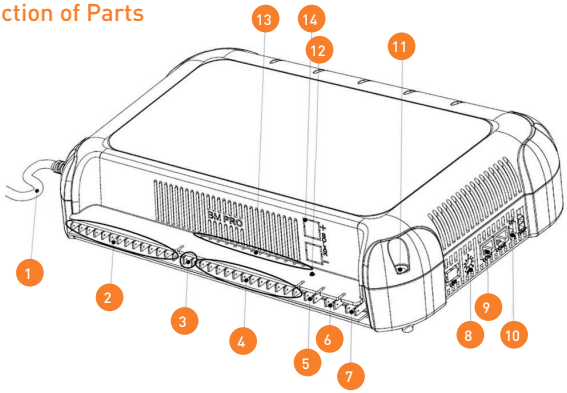
Important Note:
Trek is only designed to work in conjunction with the **BatteryPlus35** supply/charger. It will not interact with other products.

SAFETY PRECAUTIONS

Please read the Safety Precautions carefully before installing the power supply.
Be sure to observe all precautions without fail.

⚠ CAUTION	Failure to observe these instructions properly may result in property damage or personal injury, which may be serious depending on the circumstances.
Correct installation is the most critical factor in ensuring the safe use of the power supply. If every consideration of these instructions has been satisfied the power supply will be safe to operate.	
Ensure that there is always good ventilation for the battery and the power supply.	
Take care as dropping or touching of metal objects onto the battery terminals may cause short circuits. Remove any personal metal adornment such as a chain, watch or ring, which could cause short circuits and personal injury.	
Batteries are electrically live at all times 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.	
Do not attempt to charge non-rechargeable batteries. Charging a non-rechargeable battery risks the battery catching fire or possible explosion.	
Do not allow water or other liquids to enter the power supply area.	
Do not drop or shake the product vigorously as this may cause damage to the product. Do not shock the equipment, batteries and charger, as this may cause device or battery failure, fire or explosion.	
Stay away from magnetic equipment; radiation may erase information stored on the device.	
Please note that the battery can only reach top performance level after it has been fully charged and discharged two or three times.	
Keep the device dry; do not expose it to water. Do not use it where it can fall into water (such as near a pool, pond, bath etc.). Do not let the device, battery or charger come into contact with water vapour or operate it with wet hands. Contact with water will cause the device to short-circuit, corrode or cause electric shock.	
Do not use this product where it is excessively hot, cold, dusty or humid, or where it is exposed to strong magnetic fields or long periods of sunshine. Such exposure may cause device or battery failure, fire or explosion.	
Only use the device with the battery and cable supplied. Use of other accessories not recommended in this manual may cause damage to the unit and will void the warranty.	
Clean the housing of the device lightly with a dry or moist cotton cloth. Do not use alcohol, thinners, benzene or any other chemical cleaner.	
This device is a high precision electronic product. It contains no user-serviceable parts inside. Do not try to dismantle, modify or repair it yourself. Disassembly by unauthorised persons will void the warranty.	
Specifications are subject to change and improvement without notice.	

Name and Function of Parts



1. **Mains Cable (permanently connected)**
   240 V or 110 V input power for charging the caravan battery and powering loads
2. **Load Terminal Block, Common Negative Connection**
   Used for connecting the negative wire of the 12 V loads
3. **Load Outputs, 15A x 2 Positive Connections**
   Used for connecting the positive wire of the 12 V loads. Output 1 is a persistent output.
4. **Load Outputs, 10A x 12 Positive Connections**
   Used for connecting the positive wire of the 12 V loads
5. **AX+ and AX- (Auxiliary)**
   Connection point for external DC input positive and negative wire
6. **BATT+ and BATT-**
   Connection point for battery positive and negative terminal. Attach fuse to Batt+ wiring
7. **Remote Switch Terminal Block (RSW)**
   Terminal block for connecting an optional remote switch. This switch is used to enter into storage mode
8. **Not in use**
9. **Communication Bus Connector**
   To connect BMPRO by Setec accessories such as the **Trek**
10. **Not in use**
11. **Mounting Hole (x4)**
12. **System Status Indicator**
    Multi-colour LED status indicator
13. **Load Output Status indicators**
    When the LEDs are green, the loads are OK. If the LEDs are red, then there is a fault. If the LEDs are off then loads are off
14. **Solar Panel Connection**
    This connection is for the solar input, see Solar Connection section.

INSTALLING BATTERYPLUS35 POWER SUPPLY

Personnel

Installation is to be carried out only by suitably qualified personnel.

Ventilation, Orientation, and Thermal Considerations

The preferred orientation is with the load connection at the bottom, as shown in Figure 1: Recommended Mounting Holes, and located such that there is a minimum of 80 mm free air space from all vented sides of **BatteryPlus35**. This allows for the lowest operating temperature of the internal electronics and highest reliability of the product.

The final enclosure must also provide adequate ventilation to the outside world (or larger internal cavity) to prevent excessive heating of the air within the enclosure.

At normal room temperature (25°C), the unit is rated to provide full power in both vertical and horizontal orientations. At elevated temperature up to 50°C, the output current is de-rated to 32A.

⚠ **WARNING** **The enclosure air temperature can easily exceed 50°C if adequate ventilation is not provided.**

The unit has over-temperature protection, meaning it will shut down if its internal temperature rises above a safe level. The unit will automatically restart once it has cooled to an acceptable level.

⚠ **WARNING** **DO NOT install BatteryPlus35 in the same compartment where flammable material such as petrol is stored.**

⚠ **WARNING** **Ensure that the BatteryPlus35 is not exposed to any liquids during installation or the installed environment.**

Mounting

BatteryPlus35 should be securely mounted to a suitably strong surface, using 4 pre-drilled mounting holes. Dimensional details are provided in Figure 1 below.

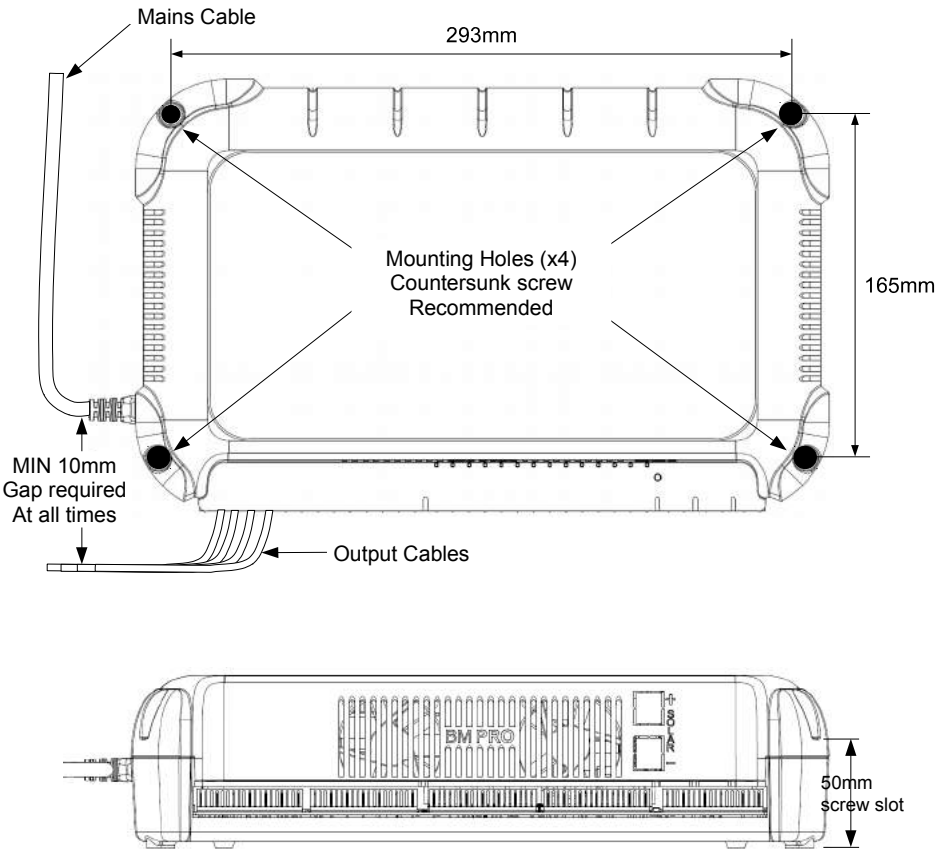


Figure 1: Recommended Mounting Holes

Mains Cable 1

⚠ WARNING **If the supply cord is damaged, it must not be replaced and the appliance should be scrapped.**

This is pre-cabled and fitted with a mains plug. Ensure that the connection to the mains supply is in accordance with the national wiring rules, and that the earth connection is installed. The mains cable must be at least 10mm away from the output cables. See Figure 1: Recommended Mounting Holes. All DC connections should be wired according to Figure 3: DC Wiring Diagram for **BatteryPlus35SR** and **BatteryPlus35HA** and Figure 4: DC wiring Diagram for **BatteryPlus35PM**.

The plug must be accessible during installation. If this is not possible, an accessible mains disconnection switch must be incorporated in the mains wiring where the plug is connected.

Wire Size

DC cables must be sized to carry the maximum full load current and to not exceed the system volt drop requirements. The following cable sizes are recommended.

When running wires, if they pass through panels or wall, ensure the wires are protected from damage by sharp edges. The use of cable glands is recommended.

Current	Minimum Wire Size
0 – 10A	1.0 mm² or 18 AWG
10 – 20A	3.0 mm² or 14 AWG
20 – 30A	5.5 mm² or 10 AWG

Table 1: Wire Size Recommendations

Load Connections

Up to 14 independently-fused loads, may be connected. Loads are attached using female spade Quick Connects (QC). See Figure 2: Quick Connect Dimensions.

Refer to Table 1: Wire Size Recommendations for wire size recommendations.

All load negative returns must be connected directly to the **BatteryPlus35** negative terminals 2 only.

Caravan Battery Connection 6

⚠ WARNING **A fuse must be installed in the positive connection of the battery. This fuse MUST be as close as possible to the battery. This fuse protects against short circuits and reverse battery conditions. A fuse rating no greater than 40 Amps must be used.**

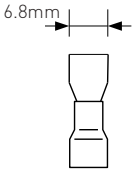


Figure 2: Quick Connect Dimensions

Connect the caravan battery to the terminals shown in Figure 3: DC Wiring Diagram for **BatteryPlus35SR** and **BatteryPlus35HA**. The battery negative return must be connected to the **BatteryPlus35** "BATT-" 6 only.

The battery negative must not be directly connected to the chassis.

In order to avoid incorrect current readings and battery capacity errors, DO NOT make any connections directly to the battery.

AX (Auxiliary) DC Input Connection 5

⚠ CAUTION **Suitable fuse protection MUST be provided for the "AX" input. A fuse rating not exceeding 30 Amps must be used.**

The power supply terminal "AX" provides an alternative option for powering the loads and charging of the batteries when mains voltages are not present. This input is to be powered from a suitable +12 V system (e.g. a vehicle). The voltage of this external DC power source should not exceed 14.8 V.

This input is isolated using an internal relay, so it is strictly an input; **BatteryPlus35** will never supply current to anything connected to this terminal. The AX voltage must be 0.5V greater than the battery voltage for charging to occur. If the current supplied by the AX input is less than 2A then the charging will stop.

This is the only input for a car connection. Refer to AX Charging on page 26.

Note: BatteryPlus35 does not provide battery charge management when operating in this configuration. In this configuration current and voltage control for the battery must be provided from the external source.

Note: The **BatteryPlus35** and loads can be powered directly from the Auxiliary input and does not require a battery.

Solar Connection 14

This connection is for solar panel connection for the **BatteryPlus35SRHA** and for a solar regulator/controller connection for the **BatteryPlus35PM**.

BatteryPlus35SR and BatteryPlus35HA Versions

BatteryPlus35SR/HA have a solar input to which standard 12V solar panels are to be connected to this input. This input is internally connected to a Maximum Power Point Tracking (MPPT) charger which is able to charge a 12V battery system and provide power to the loads. This MPPT charger is a smart, multi-stage, 450W regulator which is capable of delivering up to 30A. The charging stages are described in Figure 8: Charging Algorithm.

The voltage generated by the solar panel must exceed 17.5V for two minutes in order for the solar panels to start charging the batteries.

The AX and solar sources can be both enabled at the same time if available.

Solar Panels

Standard 12V solar panels are to be used. Solar panels may be paralleled and its (Voc) open circuit voltage must not exceed 25V.

Installing the Solar Panel

1. Make sure there is no mains and no auxiliary input
2. Connect the battery to the battery terminals
3. Connect solar panels directly to the solar input ensuring correct polarity. See Figure 3: DC Wiring Diagram for **BatteryPlus35SR** and **BatteryPlus35HA**

All connections must be sound and all QCs must be crimped well. Push each QC all the way into the blade connector.

BatteryPlus35PM Versions

⚠ **CAUTION** **DO NOT connect solar panels directly to this input.**

BatteryPlus35PM solar input is to be connected with an external solar regulator with solar panels. The external regulator or controller can be MPPT or PWM type.

The output of the solar regulator must not exceed 30A and should provide a suitable charging profile for the batteries installed in the system.

Solar panel and external regulator selection must be suitable for optimum changing current in order to prolong the life of the battery.

Consult the external solar regulator and battery specification details for more information.

This Input will be left ON when AC mains or Aux is present.

Remote Load-Isolator Switch Connection

BatteryPlus35 allows for remote control of the load connections by two methods, remote switch via the **Trek** display (optional accessory) and hardware remote switch terminals. All loads can be turned off by operation of either switch. This feature can be used to store the caravan when not used.

Both methods are described below. If both methods are installed, the dedicated remote switch overrides the remote switch via **Trek**.

Remote Switch via Trek Display

The load outputs on **BatteryPlus35** can be controlled via **Trek** (purchased separately). **Trek** has a dedicated button to switch all loads off and on. When the loads are OFF the unit enters into ECO mode.

Battery charging is not affected by this switch.

For detailed information and more, see page 31.

Note: This function is not available on the **RVView**.

Remote Switch via Hardware Remote Switch Terminal (RSW) 7

A pair of contacts, item 7 in Name and Function of Parts, are provided for connection to the external switch. When this switch is shorted, all loads are disconnected from all power and the unit is put into storage mode.

Battery charging is not affected by this switch.

Any accessories connected to the communication bus are turned off.

Any convenient switch and wire size may be used.

Communication Bus Connection 9

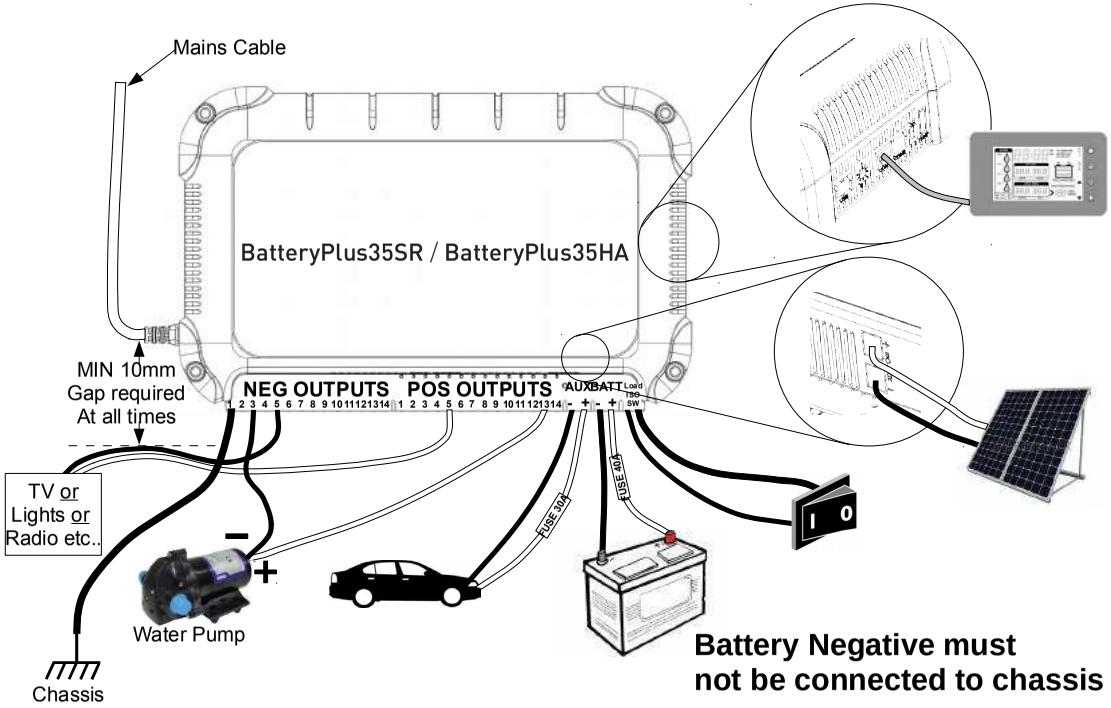
The communication bus connection is used to connect the **BatteryPlus35** and external BMPRO accessories via a data cable.

Note: See the BMPRO by Setec website for cable accessories.

Installing Controllable Pumps

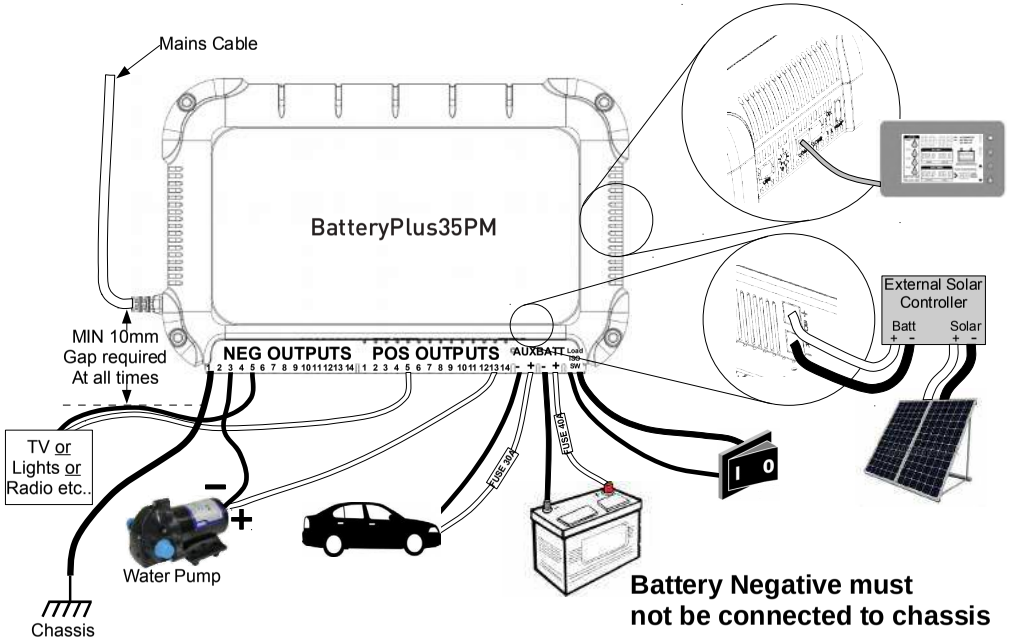
The **BatteryPlus35** has a feature which enables two output channels to be remotely controlled from the **Trek** unit. These outputs are used to control two pumps which can only be switched ON and OFF, if installed. The pumps have to be connected to outputs 13 and 14 . If only one pump is required to be controlled, connect it to output 13 Figure 3: DC Wiring Diagram for **BatteryPlus35SR** and **BatteryPlus35HA** and Figure 4: DC Wiring Diagram for **BatteryPlus35PM** shows a single pump connected.

Figure 3: DC Wiring Diagram for **BatteryPlus35SR** and **BatteryPlus35HA**



Output 13 Pump 1
Output 14 Pump 2
Output 1 Persistent output, on even if battery button on **Trek** is pushed

Figure 4: DC Wiring Diagram for **BatteryPlus35PM**



Output 13 Pump 1
Output 14 Pump 2
Output 1 Persistent output, on even if battery button on **Trek** is pushed

Battery Connection / Disconnection Procedure

⚠ WARNING **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 while connecting or disconnecting the battery. The positive terminal of the battery must not be connected to the chassis of the vehicle.**

Battery Disconnection Procedure

The caravan battery should be disconnected as per the following steps.

1. Remove mains power to the **BatteryPlus35**
2. Disconnect Solar and Aux inputs from the **BatteryPlus35**
3. Turn off all 12 V equipment connected to **BatteryPlus35**
4. Disconnect the negative battery terminal
5. Disconnect the positive battery terminal

Battery Connection Procedure

The caravan battery should be connected as per the following steps.

1. Confirm no mains power, auxiliary power, or solar power is connected to the **BatteryPlus35**
2. Connect the positive battery terminal
3. Connect the negative battery terminal
4. If a **Trek** is installed, set the total battery capacity (refer page 31) to ensure accurate forecasting

BATTERIES

Note: This battery charger is rated to charge battery banks of up to 600 Ah capacity.

When using batteries with this product, always consult with the battery manufacturer for a detailed description of the installation, use and maintenance of the battery.

The chemistry that the product can charge is detailed below:

	BatteryPlus35		
	SR	HA	PM
Battery Chemistry	Lead-Acid Only	Lead-Acid LiFePO4	Lead-Acid Only

Table 2: Product name and their corresponding chemistry

A **BatteryPlus35HA** can be used to charge a LiFePO4 battery but will need to be set using a **Trek** before use. At default the **BatteryPlus35HA** is set to Lead-Acid chemistry.

The battery will charge faster when all loads in the caravan are small.

Note: Lead-acid battery may be Gel, AGM, Sealed, Wet or Lead crystal. Consult the battery manufacturer for profile and maximum voltage and set this using the **Trek**.

Paralleling Batteries

When paralleling batteries together, all batteries **MUST** be

- of the same type and chemistry, e.g. deep cycle battery
- of the same capacity, e.g. 100 Ah
- of the same manufacturer
- fully charged before connecting them together

Figure 5: Recommended wiring for connecting batteries in parallel.

Figure 5 is a recommendation, an auto-electrician may wire this based on system requirements.

⚠ WARNING	**DO NOT install battery in the same compartment where flammable material such as petrol is stored.**

⚠ WARNING	**Select the appropriate chemistry profile using the Trek, Lead acid or LiFePO4. If unsure consult with battery manufacturer or dealer.**

Storage

If the caravan is to be stored for a long period of time, first fully charge the battery and ensure all loads are disconnected, see section Remote Load-Isolator Switch Connection. It is recommended to recharge the battery at least once every month or be maintained from the solar panel if installed. Regular recharging will prevent the battery from becoming deeply discharged—a condition which can significantly shorten battery life.

Deeply Discharged Batteries

Lead-Acid Batteries

This battery charger is not designed to charge deeply discharged batteries. Its effectiveness in charging such a battery is a function of the depth of discharge and the battery size. Bigger (higher capacity) batteries will be more troublesome in this respect.

If a battery has become deeply discharged and **BatteryPlus35** will not charge it, remove the battery (see Battery Connection/Disconnection Procedure on page 18) and charge it with a stand-alone charger. Once the battery voltage has recovered to normal levels it may be reinstalled.

LiFePO4 Batteries

If a LiFePO4 gets deeply discharged and its internal Battery Management System (BMS) turns off the battery voltage. The **BatteryPlus35** will provide a 14.6V on its output to restart the battery BMS and charge the battery.

SERVICING

This product contains hazardous voltages and energy hazards, which can result in death or injury.

Only properly qualified service personnel may service it.
There are no internal user serviceable parts.

FUNCTIONAL DESCRIPTION

Functional Diagram

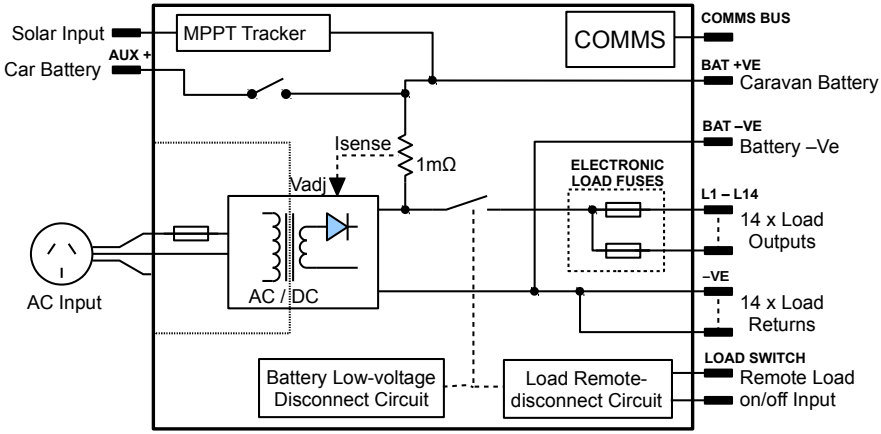


Figure 6: Functional Schematic **BatteryPlus35SR/HA**

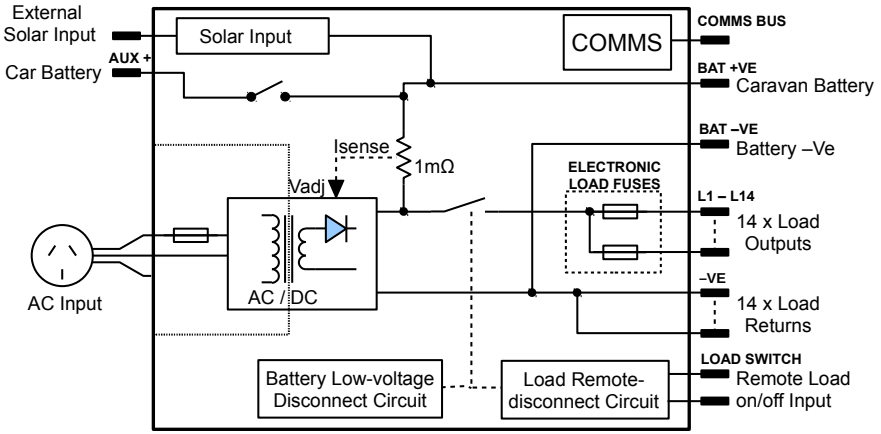


Figure 7: Functional Schematic **BatteryPlus35PM**

AC/DC Power Supply

BatteryPlus35 provides an isolated output for powering of the loads and charging of the battery. It enters into power supply mode if it is set to charge a lead-acid battery and is powered by AC mains without the battery, providing an output voltage of 12.8V.

When a battery is detected, Battery current is sensed and monitored by the power supply to limit the charging current. Refer to Charging Profile on page 26 for more details.

Multiple Inputs and Blending

BatteryPlus35 may have many active sources at one time. These sources include the battery, AC mains, solar input and auxiliary (AX) input. Multiple sources will be turned On to deliver power to the system. Their priorities are outlined below:

BatteryPlus35HA and BatteryPlus35SR

Scenario 1: If AC Mains and solar sources are available, then AC Mains is the dominant source.

Scenario 2: If AC Mains and Auxiliary sources are available, then AC Mains is the dominant source.

Scenario 3: If Solar and Auxiliary sources are available, then Solar and Auxiliary inputs are both be turned ON.

Scenario 4: If AC Mains, Solar and Auxiliary sources are available, then AC Mains is the dominant source.

BatteryPlus35PM

Scenario 1: If AC Mains and external solar sources are available, then AC Mains and solar inputs are both turned ON.

Scenario 2: If AC Mains and Auxiliary sources are available, then AC Mains is the dominant source.

Scenario 3: If External Solar and Auxiliary sources are available, then Solar and Auxiliary inputs are both turned ON.

Scenario 4: If AC Mains, Solar and Auxiliary sources are available, then AC Mains and solar input are both turned ON.

Note: If no battery is attached to the **BatteryPlus35** and is set as a lead acid charger, the nominal voltage is 12.80V when operating on Mains.

Fault Protection

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

In overload, over-temperature and short-circuit condition the power supply will shut down. It will then automatically attempt to restart every 30 seconds until the fault is removed.

For Reverse Battery protection an external battery fuse must be installed, refer to Battery Fusing.

Fusing

Electronic Load Fuses

Each load output is protected by internal electronic fuse. Electronic fuses are low maintenance and do not require replacement if a short circuit or over current condition occurs. L3 to L14 are 10A, and L1 and L2 are 15A outputs. Their locations are shown in Name and Function of Parts.

L1 is also set as a persistent load, allowing for this output to stay on if the battery voltage falls below low voltage threshold 1 or if the Remote switch button via the **Trek** is pushed. This output will turn off if the battery discharges down to low voltage threshold 2. Only light or temporary load MUST be added to L1, such as an electric step.

Electronic fuses eliminate the requirement for the user changing fuses, when a short occurs. The status of the output can be checked by LED indicators shown in Name and Function of Parts. The output will return once the fault is removed.

Note: The LED indicators have a narrow viewing window. One has to be directly above them in order to view them.

Battery Fusing

Battery fusing with maximum rating of 40A must be added to the positive line of the battery terminal and be installed as close as possible to the battery. See location shown in Figure 3: DC Wiring Diagram for **BatteryPlus35SR** and **BatteryPlus35HA**

Auxiliary (AX) Fusing

AX fusing must be added to the positive line of the AUX+ terminal. A fuse rating not exceeding 30 Amps must be used. See location shown in Figure 3: DC Wiring Diagram for **BatteryPlus35SR** and **BatteryPlus35HA**

Mains Fusing

The AC mains input is protected by an internal fuse of quick acting, high breaking capacity type and rated at 250V 10A.

Low Voltage Disconnect Modes

Low Voltage Disconnect (LVD) is a feature of **BatteryPlus35** that protects the battery from deep discharge preventing battery health deterioration. The are two LVD modes of protection for the battery, Eco mode and Storage mode.

ECO Mode

If the battery voltage drops below the ECO mode threshold, then the load outputs L2 to L14 are turned off, while L1 is left on. The communication bus and the accessories connected to this bus are left on.

If no sources are available, a temporary recovery can be done by cycling the remote Isolation switch on the **BatteryPlus35** or pressing the battery button on the **Trek**, this will turn on all the loads for short time.

In this mode, a full recovery can only be done if the Battery voltage rises above the recovery threshold or if any power source is available, all outputs will be turned back on.

Storage Mode

If the battery discharges further and its voltage drops below the storage mode threshold, output L1 to L14 are all turned off. In this state any accessory connected to the communication bus is also turned off.

In storage mode the battery current drain is less than 15mA.

If no sources are available, a temporary recovery can be done by cycling the remote Isolation switch on the **BatteryPlus35**. All loads will be turned on for short time.

In this mode, a full recovery can only be done if a power source is available and the battery voltage rises above the recovery threshold.

ECO And Storage Mode Thresholds	Lead Acid	LiFePO4
ECO mode threshold	10.5V	12.0V
Storage mode threshold	9.8V	11.5V
Recovery threshold	12.8V	13.8V

Table 3: ECO and storage mode thresholds

Battery Charging Management

To maintain the battery in a good state of health, an intelligently controlled charging algorithm is used. The purpose is to ensure that the correct voltages are applied to the battery terminals at the appropriate times throughout its usage cycle. For blending with multiple sources refer to Multiple Inputs and blending on page 22.

AC Mains Charging

The **BatteryPlus35** is a full battery management system with a multi-stage battery charger including soft- start, bulk-absorption and float charging modes to ensure long battery life. **BatteryPlus35SR** and **BatteryPlus35PM** can only charge a Lead-Acid battery, while the **BatteryPlus35HA** can charge Lead-Acid and LiFePO4 battery types.

Details of the charging profile and settings can be found in Figure 8: Charging Algorithm and Table 4: Charging voltage and current settings. The maximum time in each mode is outlined in Table 5: Charging mode time maximum limit.

The power supply is able to deliver 35A maximum to the battery and loads. If significant load current is present, the maximum battery charging current will be reduced accordingly.

Note: that for **BatteryPlus35** to operate in the manner described above, all loads must be connected to load terminals, not directly to the caravan battery.

Solar Charging

Solar Charging with BatteryPlus35SR and BatteryPlus35HA

The **BatteryPlus35SR/HA** has an in built MPPT solar regulator. This solar regulator follows the same changing settings as described in Figure 8: Charging Algorithm and Table 4: Charging voltage and current settings. The current that can be delivered to the system for solar relies on the limitations of the panels available and various condition at the time.

The voltage generated by the solar panel must exceed 17.5V for two minutes in order for the solar panels to start charging the batteries.

Solar Charging with BatteryPlus35PM

The **BatteryPlus35PM** charging currents relies on the external charger that has been connected. The power of the external solar source needs to sized according to the battery size, consult external solar controller manufacturer for correct number of panels, charge profile and installation.

AX Charging

There is no current or voltage control for charging the battery from the auxiliary source. This is a simple on-off input. The charging current and voltage relies on the external source.

The AX input voltage must be greater than the battery voltage for the internal relay to turn on. Once turned on the AX input will continue to provide power until this input current drops below 2A or is greater then 27A.

When this input is connected to a car to provide the power to the system, It is recommended to disconnect the car output from the AX, if the alternator is not running as this may discharge the car battery.

Charging Profile

The charging current and voltage settings are as follows:

	Charge Mode	Voltage Set	BatteryPlus35HA	BatteryPlus35SR/PM
LEAD ACID	Soft-start	14.4V	10A	10A
	Bulk-Absorption	14.4V	30A	20A
	Float	13.6V	10A	10A
LiFePO4	Soft-start	14.6V	10A	
	Bulk-Absorption	14.6V	30A	
	Float	13.6V	10A	

Table 4: Charging voltage and current settings

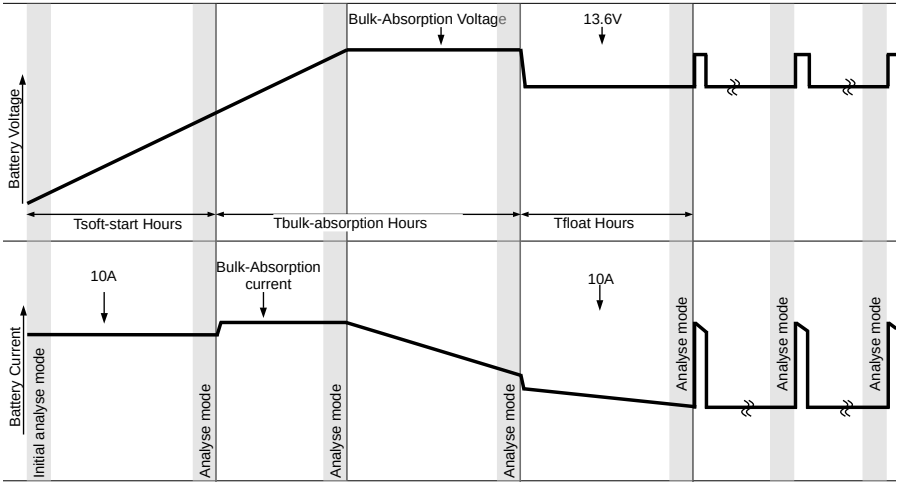
Charging Time

The maximum time that the **BatteryPlus35** will stay in each mode is as follows:

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 5: Charging mode time maximum limit

Charging Algorithm



Soft Start Mode

AC Mains Charging
When the battery is less than 9.5V, all loads are disabled and the charging current is limited to 10A. The charger charges at this rate until the battery voltage is 10.5V.

Solar Charging
When the battery is less than 10.5V, all loads are disabled and the charging current is limited to 10A. The charger charges at this rate until the battery voltage is 12.3V.

Bulk Absorption Mode

During this mode the battery is charged with a limit of *bulk-absorption current limit* until the battery voltage reaches *bulk-absorption voltage limit* and charge current of less than 2A. Then it changes to Float Mode.

This mode has a time limit of 5hrs for a 100Ah battery. If the battery is not charged within this time, the charger will automatically enter Float Mode and will repeat itself in 6hrs time.

If charging from solar, the same charging profile is followed – within the limitations of the power available from the panels at that time.

Float Mode

Once in Float Mode, the charge current is limited to 10A and keeps the battery topped up.

This mode has a time limit of 6hrs for a 100Ah battery. When this time is reached the charger will go back to Bulk Absorption Mode.

Charging Steps Repeated

Analyse Mode: BatteryPlus35 assesses the battery, sources and time continuously at all times. In analyse mode the charger uses all information to decide what needs to be done next.

Note: Bulk and Float Charging times can be changed by changing the battery capacity using the **Trek**.

		Colour Code	Flash Status
Orange: Charging	AC mains is the source and is in bulk mode		Solid
	BatteryPlus35SR/HA Solar is the source and is in bulk mode		2 flashes
	BatteryPlus35SR/HA Solar and Auxiliary available at the same time and Solar is in bulk mode		
	BatteryPlus35PM Solar is the only source and Solar current >1A		
	Auxiliary is the only source and Aux current is >2A		3 flashes
	BatteryPlus35PM Auxiliary and Solar available at the same time and Aux current is >2A and Solar is >1A		
	Battery Voltage <12V and >7V and AC mains or solar input is available		1 flash
Green: OK	AC mains is the source and is in float mode		Solid
	BatteryPlus35SR/HA Solar is the source and is in float mode		2 flashes
	BatteryPlus35SR/HA Solar and Auxiliary available at the same time and Solar is in float mode		
	BatteryPlus35PM Solar is the only source and Solar current <1A		
	Auxiliary is the only source and Aux current is <2A		3 flashes
	No sources available and house battery is OK		1 flash
Red: Error	Fault: Over-temperature		1 flash
	Fault: Battery Fault		2 flashes
	Fault: Solar Fault		3 flashes
	Fault: Other Fault		4 flashes
	Battery low voltage and no sources available	All off	All off

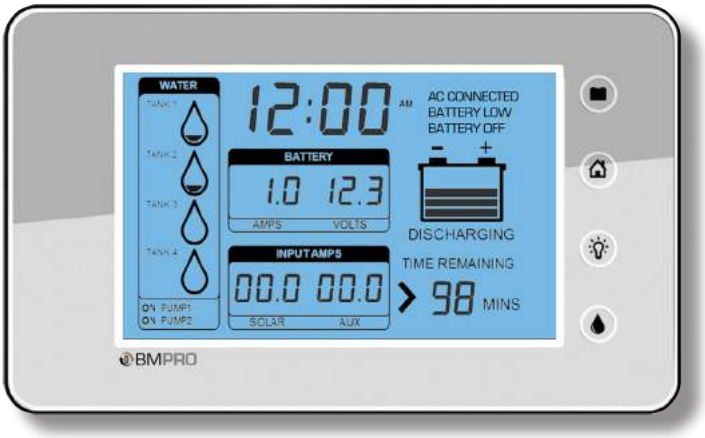
Load Output Status Indicators

A LED for each load output indicates the status of output. There are 14 LEDs for 14 outputs.

Green	Output OK
Red	Fault on the Output
OFF	Low battery voltage or remote load isolating switch

SPECIFICATIONS

Input Voltage Range:	100VAC to 240 VAC nominal, ±10%, 50-60 Hz
Input Surge:	< 40 A (cold start)
Output Current:	35A Continuous (load + battery current)
Factory Set Voltage:	13.65 V (float voltage)
Output Ripple Voltage:	<150 mV
BatteryPlus35SR/PM Battery Current Limit:	20 A max
BatteryPlus35HA Battery Current Limit:	30 A max
Battery Connect:	12.8 ± 0.2 V (after LVD event) Lead-Acid 13.8 ± 0.2 V (after LVD event) LiFePO4
Low Voltage Disconnect:	10.5 ± 0.2 V Lead-Acid 12.0 ± 0.2 V LiFePO4
Battery Drain after LVD:	< 15 mA
AC/DC Efficiency:	> 83 %
Cooling Fan:	Thermally controlled
BatteryPlus35SR/HA Solar Output Current:	30A (nominal)
BatteryPlus35SR/HA Solar Start Voltage	17.5V
BatteryPlus35SR/HA Solar Input Voltage	15V to 25V (after start-up)
Ambient:	0°C – 50°C
Communication:	Communication bus available
Weight:	2 kg
Standards:	Safety: IEC60335-2-29, IEC62109-1, EMC: CISPR 14, Approvals: RCM,



SYSTEM MANUAL

TREK

www.teambmpro.com

INTRODUCTION

Safety Precautions

Please read the Safety Precautions carefully before installing the unit.

⚠ CAUTION	Failure to observe these instructions properly may result in property damage or personal injury, which may be serious depending on the circumstances.
Refer to the installation section before operating. Correct installation is the most critical factor in ensuring the safe use of the power supply. If every consideration of these instructions has been satisfied the power supply will be safe to operate.	
As this unit is powered by a communication cable it is critical that all connections and cables are in a good and working order and properly connected.	
Do not allow water or other liquids to enter the installation area.	

Accessories

The following accessories are provided with **Trek**.

- A **Trek** Unit
- Front Fascia Cover
- Data Cable 10m
- Tank Loom
- **Trek** Manual

Other Required Items

- 4 counter sunk screws for mounting, refer to Installing **Trek** for more details.

About Trek

The **Trek** is a display and control unit that connects to **BatteryPlus35** and displays a range of battery and water tank information. Its backlit LCD displays information including:

- Battery voltage
- Battery charging and discharging currents
- Auxiliary and solar currents
- Battery charge status
- Time remaining to discharge
- Level indication of up to 4 water tanks
- Time am/pm
- Water pump status
- Battery on/off status

Features also include:

- Back light which can be set as a night light
- Button to control 2 water pumps through **BatteryPlus35**
- Button to disconnect the battery from the loads

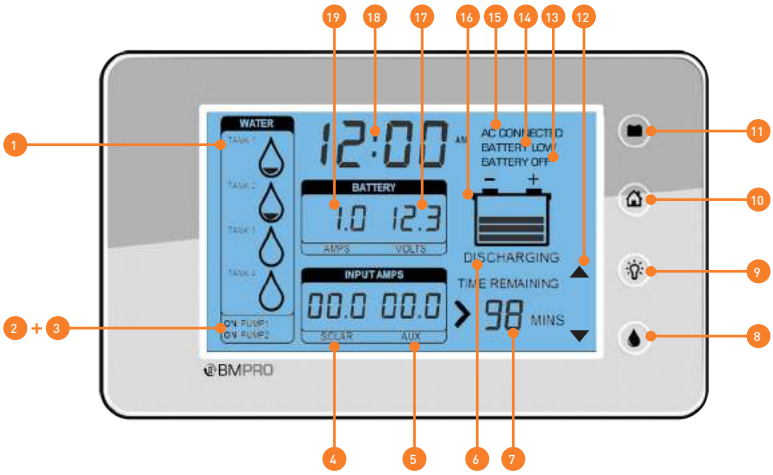
Glossary

Loads
Consists of any appliance connected to the output terminal of the **BatteryPlus35** including lights, TV, radio, etc.

Sources
Consists of any device that can supply power to **BatteryPlus35** and its loads, such as solar input, battery input, aux input and AC input.

BatteryPlus35 / BatteryPlus35
Integrated battery charger and power supply that converts 240VAC, Solar or Auxiliary DC power to 12V DC which powers loads or charges a battery and works with the **Trek**.

Name and Function of Parts



1. **Tank 1 / Tank 2 / Tank 3 / Tank4**
   Water tank level indicators. These can also be turned into waste water tanks.
2. **Pump 1 Status Indicator**
3. **Pump 2 Status Indicator**
4. **Solar Current**
5. **Aux Current**
6. **Battery Charge State**
   This shows if the battery is charging or discharging
7. **Time Remaining**
   Time until battery flat
8. **Water Pump Button**
   Enables/disables the water pump
9. **Backlight Button**
10. **Home Button**
    Home button is used for setup functions
11. **Battery Isolate Button**
    When paired with a **BatteryPlus35**, this switch will isolate the battery from the loads
12. **Setup Mode Indicators**
    These indicators only appear when in setup mode
13. **Battery Off**
    Appears when the Battery is isolated
14. **Battery Low**
    Appears only when Battery voltage is less than the low voltage warning threshold. This is set in the Battery alarm menu
15. **AC Connected**
16. **Charge Bar Graph**
17. **Battery Voltage**
18. **Clock**
19. **Battery Current**

OPERATION

In normal power-on mode the unit displays the Home screen.

Trek is designed to interface with **BatteryPlus35**. The functionality described below assumes **Trek** has been correctly connected to **BatteryPlus35**.

The **Trek** will turn off if battery voltage is too low.

On Power Up

On Power up **Trek** will display "CAN WAIT" until communication between **Trek** and **BatteryPlus35** is established.

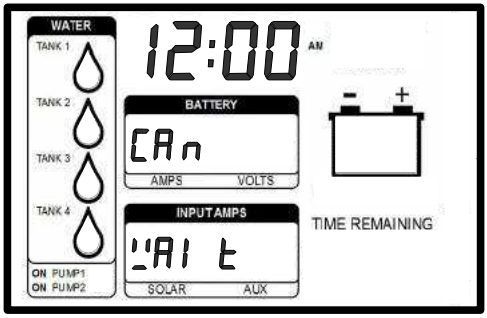


Figure 2: Trek display when first powered up

When communication between **Trek** and **BatteryPlus35** is established, **Trek** will display information similar to the Figure 3.

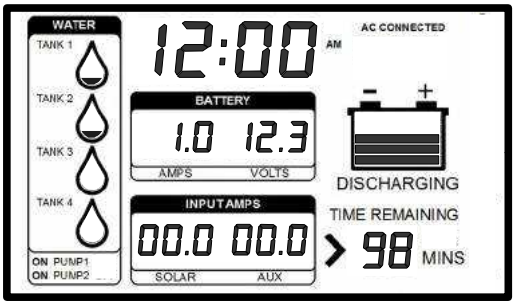


Figure 3: Trek displaying information after initial power on, typical home screen.

If **Trek** cannot establish this communication within 30 seconds, then "CAN Err To" will be displayed. If this occurs then there is a fault in the system. Check all connections.

Description of Display Elements

Tank 1 / Tank 2 / Tank 3 / Tank 4 1

Trek can support up to 4 tank sensors and can be set-up as fresh water and/or waste water tanks. By default, only Tank 1 and Tank 2 are enabled as fresh water tanks. These indicate the approximate water level in each of the tanks.

The display differences between each of the configurable states are as follows:

- Enabled as a fresh-water tank: the bottom level-segment flashes when the tank is empty.
- Enabled as a waste-water tank: all segments flash when the tank is full.
- Disabled: no level segments are displayed.

Pump Status Indicator 2 + 3

These indicators show if the pumps installed are enabled or disabled. This is controlled by the pump button 8 .

Solar Current 4

This is the current that is drawn from solar input of the **BatteryPlus35**. If solar is present but not used, the **Trek** will display "00.0", while if there is no solar source available then "--.-" is displayed.

Aux Current 5

This is the current that is drawn from the auxiliary(AX) input of the **BatteryPlus35**. If aux source is present but not used, the **Trek** will display "00.0", while if there is no aux source available then "--.-" is displayed.

Battery Charge State 6 + 16

A bar graph showing the state of charge of the battery. "CHARGING" or "DISCHARGING" is displayed under this bar graph

Time Remaining 7

Indicates the estimated time remaining for the battery to be discharged to empty, assuming it continues to discharge at the current rate.

Time less than 180 minutes will be displayed in minutes, while if its greater then it will be displayed in hours and If the remaining time is greater than 199 hours, the display shows ">199 HRS".

Setup Mode Indicators 12

These indicators only appears when **Trek** is in setup mode. The icons indicate the functions of the buttons adjacent to it. The icons include edit, back, ▲ & ▼ symbols.

Battery Off 13

This indicator is displayed when loads are disconnected from all sources including the battery. This is controlled by the battery isolate button 11 and in conditions where the battery is too low to be used. All other segments will also be turned off to reduce current draw from the battery.

Battery Low 14

This indicator is displayed when the battery voltage is at or below the low voltage warning threshold. For lead-acid battery the default is 11V and for LiFePO4 it is 12.3V. It is recommended to charge the battery if this annunciator is seen.

This is user configurable, refer to the Setup Mode section.

AC connected 15

This indicator appears only when **BatteryPlus35** is connected to AC mains.

Volts 17

Displays the battery voltage.
The displayed value will flash if communication with an installed the BC300 (External Shunt) is lost. Refer to Appendix 1 to disable flashing.

Amps 19

Shows the charging or discharging current of the battery.
The displayed value will flash if communication with an installed the BC300 (External Shunt) is lost. Refer to Appendix 1 to disable flashing.

Clock 18

Displays a 12 or 24 hour clock. This is user configurable. Refer to the Setup Mode section.

Description of Buttons

Water Pump Button 8

This button controls power to the water pump outputs on **BatteryPlus35**.

When **BatteryPlus35** and **Trek** are first powered, the outputs assigned for the pumps are ON and **Trek** display "ON PUMP1" 2 and "ON PUMP2" 3

Pump 1 To switch pump 1 On/Off press the water pump button 8 once

Pump 2 To switch pump 2 On/Off press and hold pump button 8 until the desired change is seen.

In setup mode the water pump button turns into the " ▼ button".

Backlight Button 9

Backlight button is primarily used to enable the backlight.

In setup mode the backlight button is the " ▲ button"

Backlight Functionality

Turn on backlight temporarily: Press any button to turn ON the backlight temporarily and will automatically turn off after 30 seconds.

Turn on nightlight: Press and hold the backlight button until the backlight blinks (approximately three seconds). The backlight will turn ON for 10 hours.

Turn off nightlight: Press and hold the backlight button until the backlight is OFF

Home Button 10

Pressing and holding the Home button for approximately 3 second puts **Trek** into the setup mode.

In setup mode the home button is the "back button".

Battery Button 11

The battery button is used to disconnect the battery, AC mains, auxiliary and solar sources from the loads. Pushing the battery button will toggle the loads ON and OFF.

When **Trek** is first turned on the battery will power the loads and "BATTERY OFF" 13 is NOT displayed. When the battery button is pressed, the loads are disconnected from the battery and "BATTERY OFF" will appear and all other segments will also be turned off to reduce current draw from the battery.

In setup mode the battery button is the "EDIT button".

SETUP MODE

Enabling Setup Mode

1. Ensure the display is in normal mode (not in any setting mode).
2. Press and hold the HOME button for at least 5 seconds.
3. "SETUP" will be displayed in 17 + 19 location
4. Now you are in setup mode

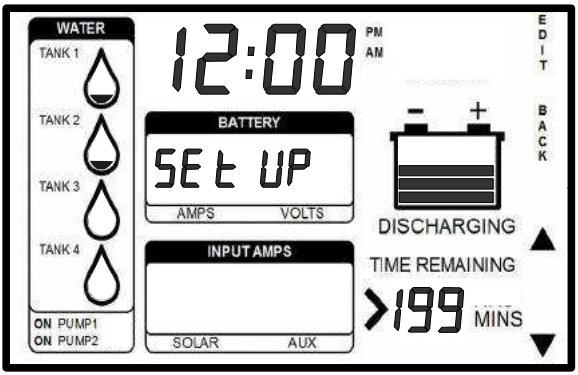


Figure 4: Setup Mode

Setup Menu

When in setup mode, the ▲ or ▼ button can be used to scroll through the setup menu. The list of options in the setup menu is as follows:

Mode: SEt UP

Press "EDIT" to select required category

CLOCH	Clock Menu
tAn HS	Water Tank Menu
bAtCAP	Battery Capacity Menu
bAtALr	Battery Alarm Menu
bAHLIt	LCD Back-light Menu
AdvAnC	Advanced Settings. For technical personnel only.
S'.'vEr	Trek software Version, Read ONLY
H'.'vEr	Trek Harware Version, Read ONLY
bP S'.'	BatteryPlus35 software version, Read Only
bP H'.'	BatteryPlus35 hardware version, Read Only
SOLS'.'	Solar software version, Read Only Available only when solar power is present.
SOLH'.'	Solar hardware version, Read Only Available only when solar power is present.
FACtrY	Factory Reset

If the **Trek** discovers any other accessory that is compatible, it will display the ID of that device and its hardware and software version.

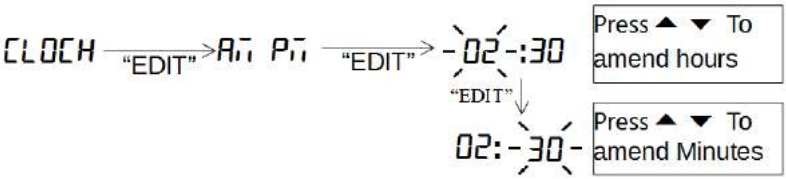
To exit menu, press and release the "Back" button a few times until the home screen is seen.

Clock Menu

Press and hold the HOME button until you see Setup

Press and release the ▲ button a few times until you see CLOCK

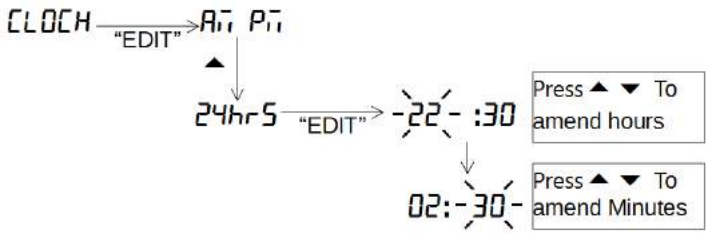
Setup 12hr Clock



AM and PM annunciators will automatically change as the time changes from 11 to 12.

To exit menu, press and release the "Back" button a few times until the home screen is seen.

Setup 24hr Clock



To exit menu, press and release the "Back" button a few times until the home screen is seen.

Water Tank Menu

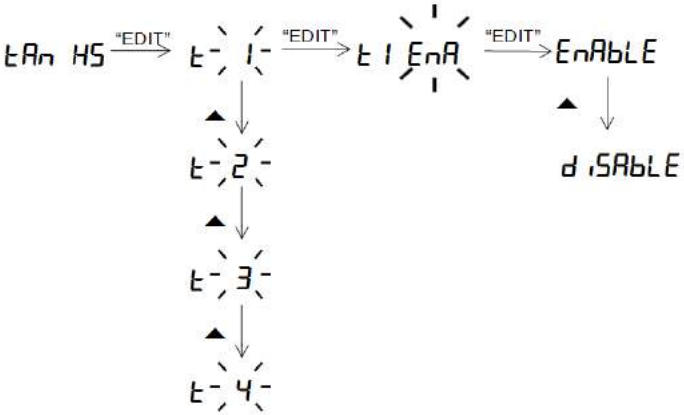
Water Tank Enable

This shows how to enable or disable the water tanks.

After enabling the required tank, allow for 15 seconds for the tank levels to update.

Press and hold the HOME button until you see Setup

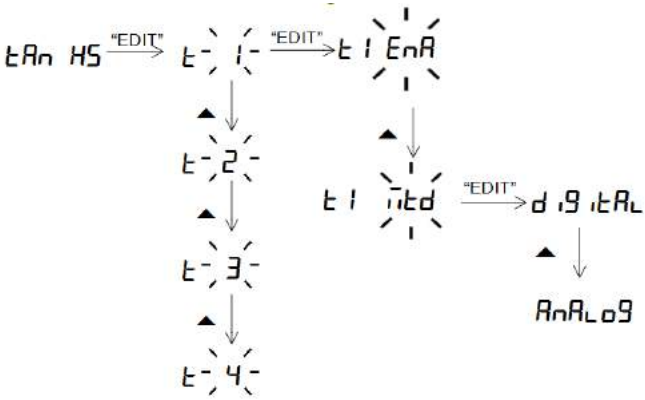
Press and release the ▲ button a few times until you see tanks



To exit menu, press and release the "Back" button a few times until the home screen is seen.

Water Tank Type (Fresh/ Waste)

This shows how to change the water tank from a fresh water to waste water tank.



To exit menu, press and release the "Back" button a few times until the home screen is seen.

Battery Capacity Menu

When a new battery is fitted, set this to the nominal battery capacity (as marked on the battery); doing this will assist the software in determining the actual capacity.

This shows how to change the battery capacity in AH. The battery capacity can be incremented or decremented.

Press and hold the HOME button until you see Setup

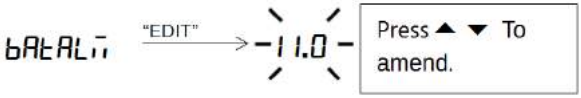
Press and release the ▲ button a few times until you see BATCAP

To exit menu, press and release the "Back" button a few times until the home screen is seen.

Battery Alarm Menu

This shows how to change the battery alarm. This parameter indicates when the Battery Low 14 annunciator starts to blink.

The alarm threshold can be incremented or decremented in steps of 0.5V. The alarm threshold can be adjusted from 10.0V to 14.0V.



To exit menu, press and release the "Back" button a few times until the home screen is seen.

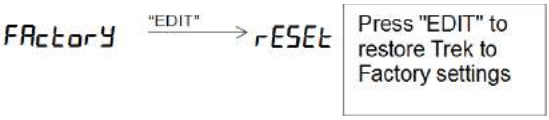
LCD Backlight Menu

This shows how to change the LCD backlight brightness. The backlight brightness can be incremented or decremented in steps of 10%. The brightness can be adjusted from 0% to 100%.

To exit menu, press and release the "Back" button a few times until the home screen is seen.

Factory Reset Menu

This shows how to restore **Trek** back to factory settings.
WARNING: All saved settings will be erased.



To exit menu, press and release the "Back" button a few times until the home screen is seen.

NEW BATTERY INSTALLATION

Trek is a smart battery monitor that is able to learn the actual battery capacity and thus provide more accurate "Time Remaining" feedback to the user.

When an existing battery is replaced by a new one or if it is a new installation, check the capacity of the new battery and verify this in Battery Capacity Menu on page 16. Change this as required.

Fitting a new battery and doing nothing else will result in the "Time Remaining" display initially being inaccurate. It is recommended to charge the battery until **Trek** shows the charging current is less than 2A. Disconnect mains, solar and auxiliary before installing a new battery.

See **BatteryPlus35** installation instructions for more information on the installation of new battery.

CONNECTORS

At the rear of **Trek** are two connectors.

1. The communication bus connector which is a data cable that connects **BatteryPlus35** to **Trek**.
2. The Tanks Sensor connector with a detachable loom. This loom can be connected to 4 digital tank sensors.

INSTALLING TREK

Personnel

Installation is to be carried out only by suitably qualified personnel.

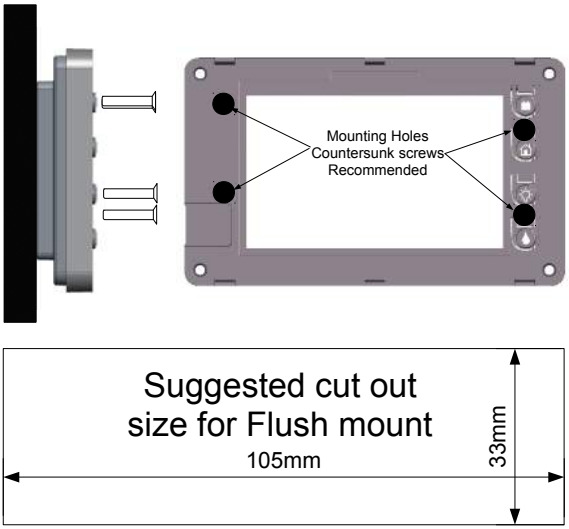
Installation Environment

Trek should be installed indoors where it will not be subject to water or other liquid spills or splashes.

Mounting

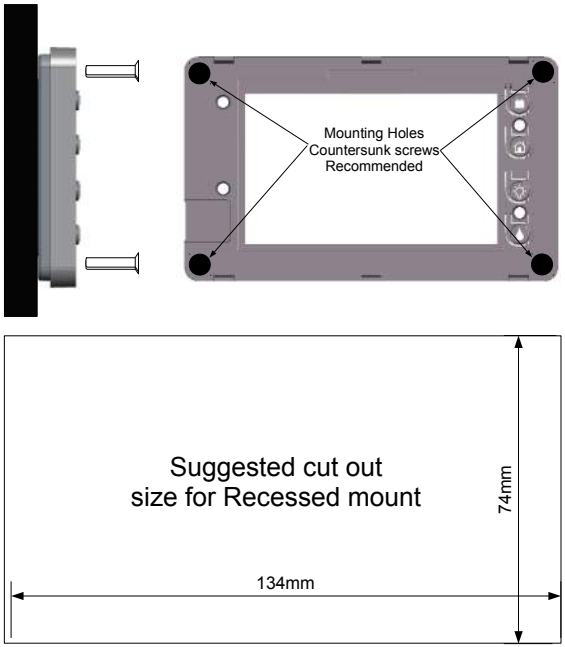
Trek is designed to be mounted to the wall directly with counter sunk screws. It can be mounted in two methods depending on the look and application required. The mounting methods and required mounting holes are specified below. Cut-out dimensions for each method are shown. These cut-outs are to be used to cut the hole in the wall before fixing the unit.

After fixing **Trek** to the wall, remove the clear protective plastic from the front of the display, then clip on the provided front fascia cover to **Trek**. Finally remove the clear protective plastic from the front fascia.



Screw Requirements
Mounting Method 1
Screw type: Counter sunk
Diameter: 4.0mm Max
Length: 25mm Min

Figure 5: Mounting Method 1 Details



Screw Requirements
Mounting Method 2
Screw type: Counter sunk
Diameter: 3.5mm Max
Length: 20mm Min

Figure 6: Mounting Method 2 (RECESS) Details

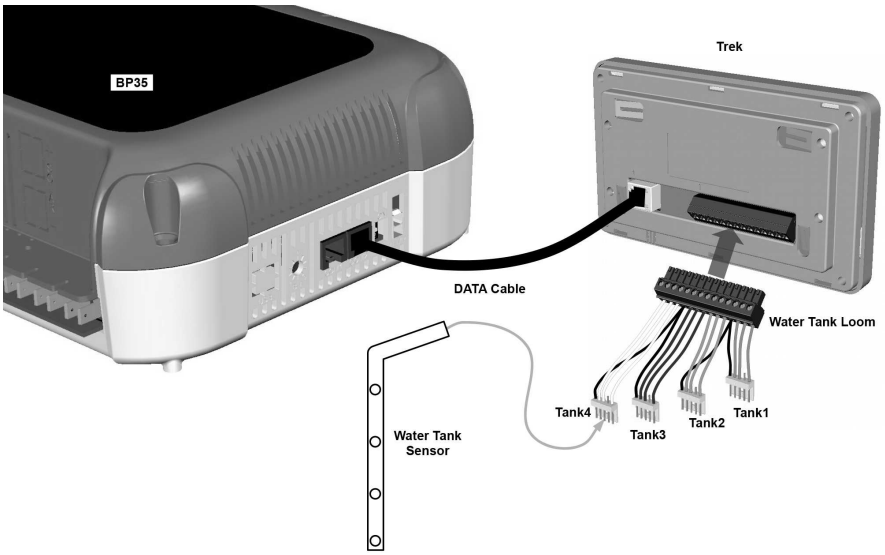


Figure 7: Trek to **BatteryPlus35** Wiring

Water Tank Level Wiring

Digital Sensor

1. Empty the water from the tank(s)
2. Choose a suitable side of the tank where the level-sensing can be located.
3. Drill the required hole in the tank
4. Install the tank sensor to the tank
5. Connect sensor connector to the water tank loom
6. Fill the tank(s) and check for water leaks around the bungs. Reseal as necessary.
7. Test operation of water level sensors, water pump switch, and Battery on/off switch.

SERVICING

There are no internal user serviceable parts.

SPECIFICATIONS

Input Voltage:	8 — 15 Vdc
Battery Drain:	< 21 mA (backlight off)
Low Voltage Disconnect:	10.5 ± 0.2 V Lead-Acid 12.0 ± 0.2 V LiFePO4
Ambient Temperature:	0°C – 50°C
Size:	149 W x 85 H x 22 D

AFTER-SALES SERVICE

⚠ WARNING **DO NOT disassemble, modify, or repair the unit. Doing so may result in electric shocks or fire.**

Repairs and After-sales Service

Consult Setec or "BMPRO by Setec" dealer.

APPENDIX 1 : ADVANCED MENU

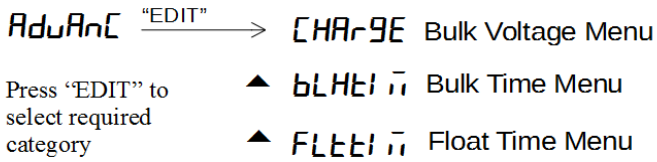
⚠ WARNING **The advanced menu is reserved for technical personnel only and available features vary with some versions of the BatteryPlus35.**

Incorrect use of this menu can over charge the battery and cause damage to property and cause personal injury. If unsure, do not change the default values.

The advanced menu allows installers to fine tune the charging parameter, such as bulk voltage, bulk time and float time.

Advanced Menu Entry

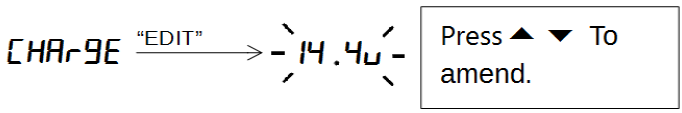
Press and hold the ⌂ button until you see SETUP



Press and release the ▲ button a few times until you see ADVANC
To exit menu, keep pressing the "Back" button until the home screen is seen.

Bulk Voltage

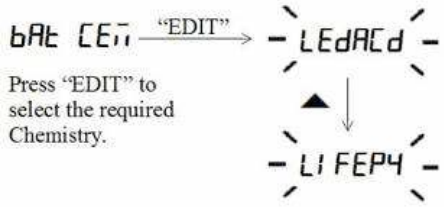
The bulk voltage is the maximum voltage at which the battery will be charged. This voltage can be adjusted from 13.6V to 14.6V with increments of 0.1V.



To exit menu, keep pressing the "Back" button until the home screen is seen.

Battery Chemistry (BatteryPlus35HA only)

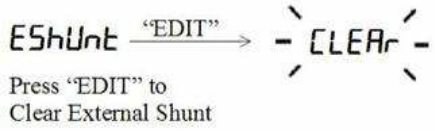
This menu can be used to select the battery chemistry. There are two types of chemistries to choose from: Lead Acid and LiFePO4.



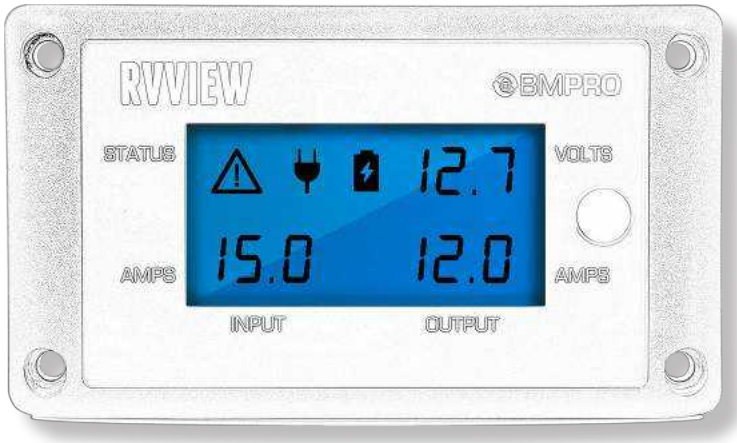
To exit menu, keep pressing the "Back" button until the home screen is seen.

External Shunt (Only if the external shunt is install)

The presence of the external shunt can be cleared in this menu item.



This menu item is used when the communication with the external shunt is lost. If "Clear" is selected, the BatteryPlus35 will ignore the error of not detecting the external shunt and behave as the external shunt is not installed.



SYSTEM MANUAL

RVVIEW

www.teambmpro.com

INTRODUCTION

RVView monitors and displays vital battery information such as volts and amps, charge/discharge status and details of the source input for your recreational vehicle 12V system.

RVView is permanently wired into the **BatteryPlus35** in the recreational vehicle and continuously monitors battery information, providing vital data at a glance using a clear back-lit display.

Safety Precautions

Please read the Safety Precautions carefully before installing the unit.

⚠ CAUTION	Failure to observe these instructions properly may result in property damage or personal injury, which may be serious depending on the circumstances.
Refer to the installation section before operating. Correct installation is the most critical factor in ensuring the safe use of the power supply. If every consideration of these instructions has been satisfied the power supply will be safe to operate.	
As this unit is powered by a communication cable it is critical that all connections and cables are in a good and working order and properly connected.	
Do not allow water or other liquids to enter the installation area.	

Accessories

The following accessories are provided with **RVView**.

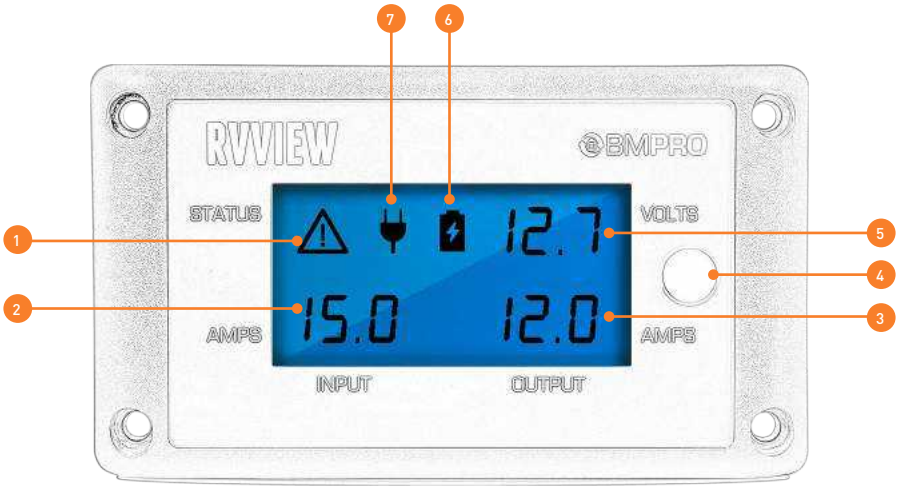
- **RVView** Unit
- **RVView** Manual
- 4 Mounting Screws

About RVView

The **RVView** is a display unit that connects to **BatteryPlus35** and displays battery or system information. Its backlit LCD displays information includes:

- System voltage
- Input and output current
- Battery charging and discharging indicator
- Power Source – Mains, Solar or Car
- Warning indicator
- Battery charge status
- Back-light which turns on for 30 seconds

Name and Function of Parts



1. Warning Indicator
2. Input Current
3. Output Current
4. Backlight Button
5. System Voltage
6. Battery Status Indicator
7. Source Indicator

OPERATION

RVView is designed to interface with **BatteryPlus35**. The functionality described below assumes **RVView** has been correctly connected to **BatteryPlus35**.

The **RVView** will turn off if battery voltage is too low.

DESCRIPTION OF DISPLAY ELEMENTS

Warning Indicator 1

The warning symbol will be displayed

1. If one or more of the outputs on the **BatteryPlus35** are shorted or overloaded. To fix the issue check all wiring and appliances connected to the **BatteryPlus35** outputs. Remove any faults found.
2. If the external shunt was installed and is no longer communicating the warning icon is as follows:

The Warning Icon

Input Current 2

This is the total current provided by the **BatteryPlus35** from any source to the appliances and the battery, shown in Amps.

Example; if the battery is charging at 5 Amps and the appliances are consuming 10 Amps then the input current will display 15 Amps.

If no sources are available or no battery is installed this section is left blank.

Output Current 3

The output current is current provided by the system to the output appliances, shown in Amps. This would display 10A in the above example.

Backlight Button 4

A single press of this button will turn the backlight on and will turn it off in 30 secs. Repeated single presses will toggle the backlight on and off.

System Voltage 5

This is the system voltage. If a battery is installed then this is the voltage across the battery terminals. If no battery is installed then this is the voltage generated by the **BatteryPlus35**.

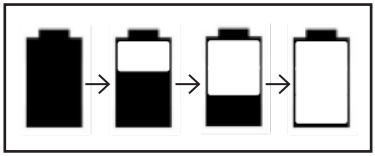
Battery Status Indicator 6

RVView indicates 4 different battery status.

Battery present & is 100%

Battery is present & NOT 100%

Battery is charging. The BOLT inside the symbol will be flashing



Battery is discharging. The animation shows the discharging action.

Source Indicator 7

The **RVView** indicates if various sources are available, the follow are displayed

Only AC Mains is available

Only Auxiliary Source is available

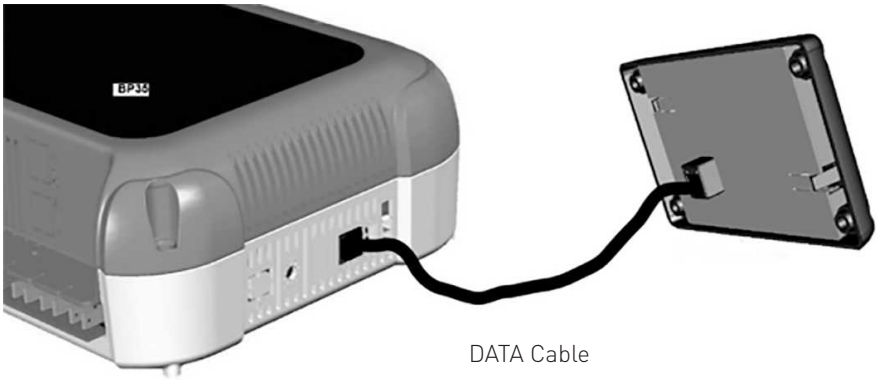
Only Solar is available

Solar and Auxiliary are available at the same time

Solar and AC mains are available at the same time

CONNECTORS

At the rear of **RVView** a data cable is used to connect it to the **BatteryPlus35**.



DATA Cable

SERVICING

There are no internal user serviceable parts

SPECIFICATIONS

Input Voltage:	8 — 15 Vdc
Battery Drain:	< 22 mA (backlight off)
Ambient Temperature:	0°C – 50°C
Size:	140 W x 80 H x 15.5 D

AFTER-SALES SERVICE

⚠ **WARNING** **DO NOT disassemble, modify, or repair the unit. Doing so may result in electric shocks or fire.**

Repairs and After-sales Service

Consult your "BMPRO by Setec" dealer. or visit teambmpro.com

TROUBLESHOOTING

Observation The **RVView** LCD is blank.

Solution The **BatteryPlus35** will turn off the **RVView** if the battery voltage is too low or if the isolation switch on **BatteryPlus35** is shorted.

RVVIEW INSTALLATION INSTRUCTIONS

Personnel

Installation is to be carried out only by suitably qualified personnel.

Installation Environment

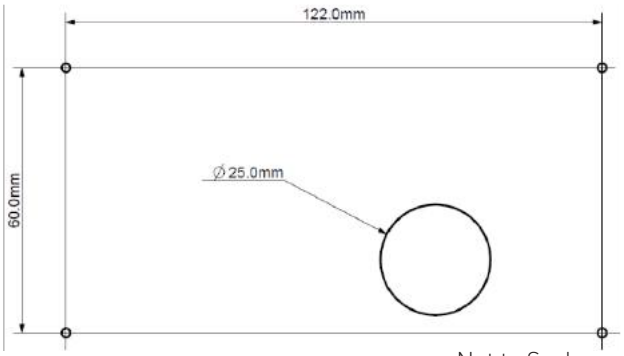
RVView should be installed indoors where it will not be subject to water or other liquid spills or splashes.

Items Required For This Installation

1. The **RVView** Unit
2. The Data cable
3. 4 Mounting Screws
4. A 25mm hole saw
5. Power Drill
6. Philips Screw diver

Installation

First drill a minimum 25mm hole in the wall to fit the data cable to the **RVView**, as shown below:



Not to Scale

Setting the Battery Capacity

If a 100AH battery is installed proceed to next step
"CONNECT THE DATA CABLE"

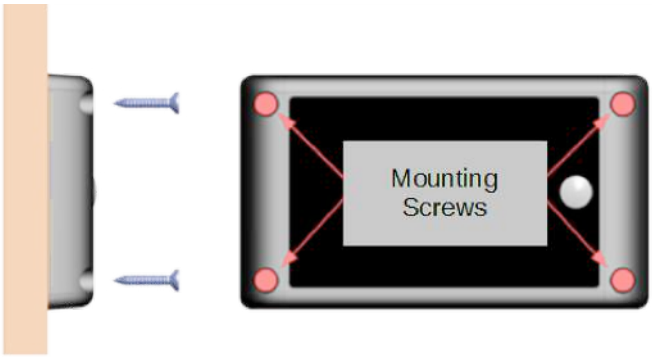
If a battery/battery bank of more than 100AH is to be installed, a **Trek** is needed to set the battery capacity. Go to "SET THE BATTERY CAPACITY USING A **Trek**" first.

Connect the Data Cable

Connect the **BatteryPlus35** to the **RVView** using the data cable, through the 25mm hole in the wall.

Mount the RVView

Using the screws provided, mount the **RVView** to the wall. Pre-drill the mounting holes if required.

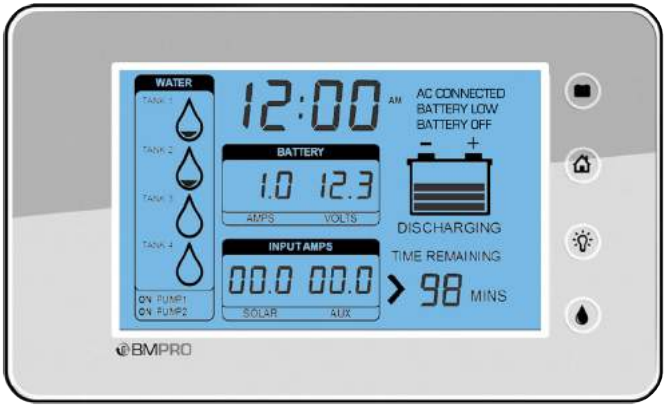


After fixing **RVView** to the wall, remove clear protective plastic from the front cover.

Set the Battery Capacity Using a Trek

Follow these steps if you are installing a battery/battery bank of more than 100AH.

1. First obatin a **Trek** Unit (Version 2E or above). Speak to your distributor or a BMPRO team member.



2. Connect the **BatteryPlus35** to the battery
3. Then connect the **Trek** to the **BatteryPlus35** using the DATA Cable
4. Notice that the **Trek** will turn on
5. Next press and hold, the "HOME button" until the Setup is seen
6. Next press the "UP button" until the battery capacity is seen bAtCAP
7. Next press the "EDIT button" the capacity value will start to blink
8. Press the "UP button" to set your desired battery capacity
9. Once done, press the "BACK button" a few times to reach the Home screen
10. Finally disconnect the **Trek** and connect the **RVView** to the Data cable
11. Go to "CONNECT THE DATA CABLE"

WARRANTY TERMS AND CONDITIONS

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

BMPRO by Setec 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).

Setec, as the manufacturer of BMPRO by Setec goods 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: The **BatteryPlus35, Trek** and **RVView** are 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.

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.

Setec may seek reimbursement of any costs incurred by them 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.

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

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

b. Package and send the product to: BMPRO by Setec 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

Setec 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

SWITCH OFF. POWER UP.

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