BMPRO

OWNER'S MANUAL

J35+ CONTROL NODE

FOR MODELS J35A | J35B-L | J35D



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BMPRO

POWERING YOUR ADVENTURES

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

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

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

To learn more about the BMPRO range of products, please visit our website **teambmpro.com**

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SAFETY PRECAUTIONS

Please read the Safety Precautions before installing or using the J35 and ControlNode. Be sure to observe all precautions without fail. Failure to observe these instructions properly may result in personal damage, or personal injury which depending on the circumstances may be serious and cause loss of life.

⚠ WARNING
⚠ Correct installation is the most critical factor in ensuring the safe use of the **J35** and **ControlNode**. If every consideration of these instructions has been satisfied, the **J35** and **ControlNode** 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 the **J35**. Remove any personal metal adornment such as chain, watch or ring before handling the battery and **J35.**
⚠ Do not attempt to charge non-rechargeable batteries. Charging a non-rechargeable battery may result in the battery catching fire or possible explosion.
⚠ 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.

⚠ WARNING

⚠	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 **J35** and **ControlNode** 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.
⚠	The **J35** and **ControlNode** 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.

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MANUAL PART 037134
REV 9.0

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

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

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ABOUT THE J35

BMPRO's range of J35 battery management systems management system are specially designed to be fitted in Jayco caravans.

The J35 operates from 240V AC mains power supply, towing vehicle auxiliary and solar panels to simultaneously power caravan loads and charge the caravan battery.

The J35 employs intelligent charging algorithms, ensuring optimal battery health. Automatic battery preservation mode saves remaining battery power until you're ready and able to charge.

Download the JHub App to your mobile device and with the ControlNode, enjoy the freedom to monitor your caravan battery and operate caravan onboard features, all from your own personal mobile device.

The J35 is available in a range of models to suit any RV and battery management need.

FEATURE	J35A	J35B-L	J35D
Load Connections	7	14	14
Maximum Current Output	20A	35A	35A
Maximum Charging Current	15A	30A	30A
Solar Input	✕	300W	450W
Mobile Device + **JHub App** [1]	✓	✓	✓
Lithium Compatible[2]	✕	✓	✓

Table 1: Comparison of features for the models in the J35 + ControlNode range
[1] Requires ControlNode102 or later.
[2] LiFePO4 only.

OPTIONAL ACCESSORIES

To get the most from your J35 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
- **JControl** or **JHub** Battery Monitors
- **MiniBoost** and **MiniBoost Pro** DC-to-DC chargers.

COMPATIBLE BATTERY TYPES

All J35 models are compatible with lead acid batteries:

- Valve-Regulated (VRLA)
- Absorbed Glass Mat (AGM)
- Gel

The **J35B-L** and **J35D** are also compatible with lithium LiFePO4 batteries.

By default, the **J35B-L** is configured to charge lead acid batteries, and the **J35D** is configured to charge LiFePO4 batteries.

⚠ WARNING

Ensure you check your battery configuration before use.

DESCRIPTION OF PARTS

J35

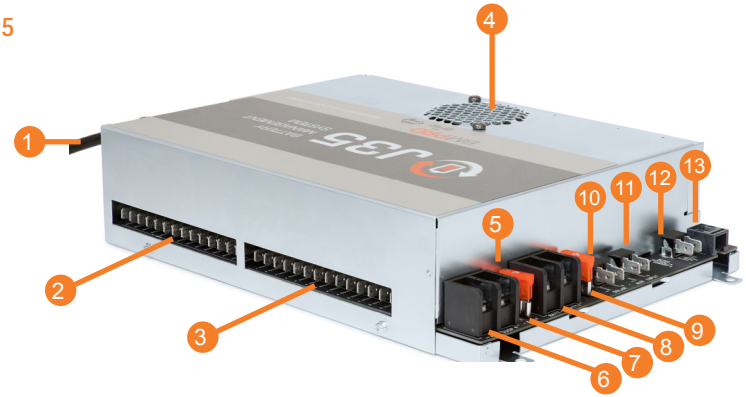


Figure 1: The **J35**

❶ MAINS CABLE

The J35 is pre-cabled with a permanent mains power supply cord. The AC mains input is protected by a quick acting, high breaking capacity type fuse (rated 250V, 10A).

❷ LOAD TERMINAL BLOCK – COMMON NEGATIVE CONNECTION

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

❸ LOAD TERMINAL BLOCK – POSITIVE CONNECTION

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

To control loads from the JHub App, each load must be connected to the correct terminal. Terminals are labeled according to their designated load output.

J35A TERMINAL/LOAD	CURRENT RATING	J35A TERMINAL/LOAD	CURRENT RATING
1-Stereo	15A	5-Lights/Spare	10A
2-Spare	15A	6-Lights/Spare	10A
3-Pump	10A	7-Lights/Spare	10A
4-HWS	10A		

Table 3: J35A designated terminal-load outputs for the load terminal block-positive connection

J35B-L / J35D TERMINAL/LOAD	CURRENT RATING	J35B-L / J35D TERMINAL/LOAD	CURRENT RATING
1-Slide-Out	15A	8-12V Outlet 1	10A
2-Spare 2	15A	9-12V Outlet 2	10A
3-Water Pump	10A	10-Spare 10	10A
4-Hot Water	10A	11-Spare 11	10A
5-Lights 1	10A	12-Spare 12	15A
6-Lights 2	10A	13-AirSusp ECU	10A
7-Lights 3	10A	14-Tablet	5A

Table 4: J35B-L and **J35D** designated terminal-load outputs for the load terminal block-positive connection

Each output is protected by an internal, electronic, auto-recoverable fuse. This eliminates the need for the user to replace a blown fuse. If an electronic fuse is activated, the LED Status Indicator on the J35 will flash a solid red. The J35 will power off the faulty load and resume normal operation once the fault is fixed.

4 FAN

Regulates the internal temperature of the J35.

⚠ WARNING

To ensure continuous air-flow, the fan ventilation holes must never be blocked, otherwise the temperature of the J35 may rise and inhibit the optimal operation of the J35 and/or cause the J35 to shut down. The J35 will automatically restart once it has cooled to an acceptable level.

5 LED STATUS INDICATOR

Indicates the operational status of the J35.

6 AIR SUSPENSION OUTPUT (J35D)

Connection point to power the caravan's air suspension.

⚠ WARNING

The Air Suspension output is not controlled by the Load Isolation Switch circuitry. Engaging Load Isolation will not affect the operation of the caravan's Air Suspension.

❼ AIR SUSPENSION FUSE (J35D)
40A automotive air suspension fuse.

❽ BATTERY CONNECTION TERMINAL
Screw connection for the caravan's battery.

⚠ WARNING

Do not connect the caravan battery's negative terminal to caravan chassis or earth ground point. Connecting the battery's negative terminal to points other than the J35 negative Battery Connection Terminal (Batt-) may cause the battery to overheat and/or overcharge.

❾ BATTERY FUSE
40A automotive battery fuse.

❿ SOLAR INPUT (J35B-L / J35D)
The **J35B-L** supports the use of panels up to a total of 300W and the **J35D** up to 450W. Input current to the solar regulator is limited to 20A (**J35B-L**, equivalent to 2x150W solar panels) or 27A (**J35D**, equivalent to 3x150W solar panels).

The solar input is unable to operate in Power Supply Mode, i.e. with no caravan battery connected.

⓫ AUXILIARY (AUX) INPUT
AUX input is designed for use with 12V DC power sources. The voltage of the DC power source connected to the AUX input must not exceed 14.8V.

AUX will be available to charge the battery if the AUX voltage exceeds the battery voltage by at least 0.5V.

⚠ WARNING

Not all DC-DC chargers in the market used to boost auxiliary charging voltage from the towing vehicle are compatible with the J35.

⓬ LOAD ISOLATION SWITCH

To connect the caravan's load isolation switch. This switch is used to enter Storage Mode and power off all outputs (load terminal block and CAN bus) on the J35, except for the Air Suspension output.

Battery charging is not affected by use of the load isolation switch.

As the caravan loads are no longer powered, activating the load isolation switch 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.

⓭ CAN BUS COMMUNICATION

To connect to and power BMPRO accessories, such as the ControlNode or BC300 + CommLink.

CONTROLNODE

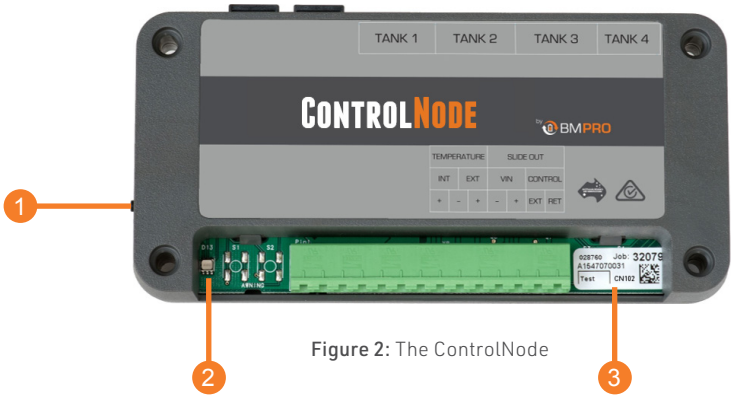


Figure 2: The ControlNode

❶ PAIRING BUTTON

Button to enable Bluetooth pairing between the **ControlNode** and the **JHub App** on your own personal mobile device or **JHub Tablet**.

❷ LED STATUS INDICATOR

Indicates the operational/pairing status of the **ControlNode**.

Operational Status	Flashing Status	Note
ControlNode is ready to pair	Green Flash 30 sec	
ControlNode memory is full, cannot pair to any new devices	Orange Flash 1 sec	To pair to a new mobile device, clear the memory of the **ControlNode**
Clearing **ControlNode** memory*	Red Flash 1 sec	Memory will only be cleared if the user presses and holds the Pairing Button for 10 seconds.

Table 5: ControlNode Operational Status and LED Flash Codes

*After memory has been cleared, the ControlNode LED Status Indicator will flash green.

❸ CONTROLNODE SERIAL NUMBER

Required to choose the correct device when pairing the ControlNode to the JHub App on your own personal mobile device or JHub Tablet.

INSTALLATION INSTRUCTIONS

MOUNTING THE J35

The J35 should be securely mounted to a suitably rigid surface, using four pre-drilled mounting holes.

The preferred orientation is with the load connection at the bottom.It is recommended the mounting holes are located so that there is a minimum of 80mm free air space from all vented sides of J35. This allows for the lowest operating temperature of the internal electronics and the highest reliability of the product.

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

MAINS CABLE

The J35 is pre-cabled and fitted with a mains plug. Ensure that the connections to the mains supply are in accordance with the national wiring rules, and that the earth connection is installed.

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

CONNECTING A BATTERY TO THE J35

⚠ 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 when connecting or disconnecting the battery. The positive terminal of the battery must not be connected to the chassis.

To connect a battery to the J35:

1. Power off all loads connected to the J35. The simplest way is with the switch connected to the J35 Load Isolation input.
2. Turn off and remove all power sources (mains/solar/AUX) to the J35.
3. Connect the battery's positive (red) terminal to the J35 Batt+ connection point.
4. Connect the battery's negative (black) terminal to the J35 Batt- connection point.

It is recommended that a 40A fuse is installed as close as possible to the battery's positive terminal to protect against short-circuits and reversed battery connections.

⚠ WARNING

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 J35.

⚠ WARNING

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

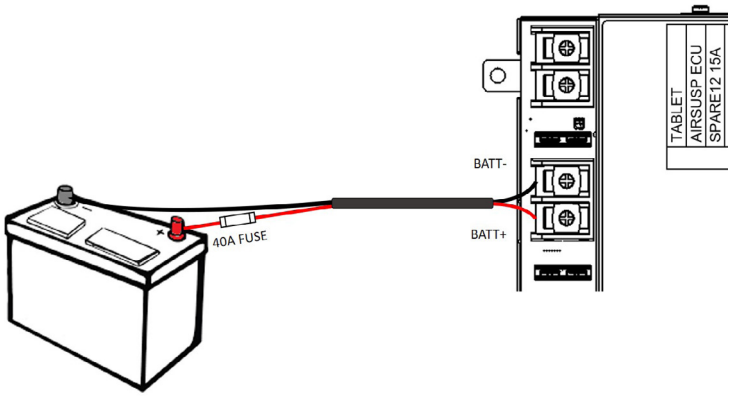


Figure 3: Connecting a house battery to the J35

After fitting a new battery to the J35, make sure that it is configured in the JHub App.

Correctly configuring the battery capacity and profile will ensure that the J35 will select the best charging parameters for the caravan battery in use, and the software accurately estimates battery usage.

DISCONNECTING A BATTERY FROM THE J35

To disconnect a battery from the J35:

1. Power off all loads connected to the J35, the easiest way is with the switch connected to the J35 Load Isolation input.
2. Turn off and remove all power sources (mains/solar/AUX) to the J35.
3. Disconnect the battery's negative (black) terminal from the J35 Batt- connection point.
4. Disconnect the battery's positive (red) terminal from the J35 Batt+ connection point.

CONNECTING MULTIPLE BATTERIES

Before connecting multiple batteries in parallel to the J35, check that all batteries are:

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

The recommended wiring for connecting multiple batteries in parallel to the J35 is given in Figure 4. Depending on system requirements, a qualified auto-electrician may wire the batteries differently.

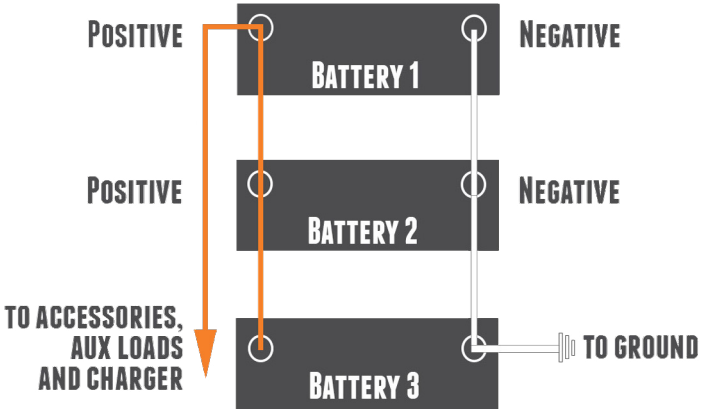


Figure 4: Recommended wiring for connecting batteries in parallel.

USING YOUR J35

BATTERY CHARGING AND MANAGEMENT WITH THE J35

Input Power Sources

The J35 may be powered from mains, AUX or solar inputs to provide battery charging current and power to caravan loads.

If mains and one or more other sources are available to the J35, the J35 will be powered exclusively by the mains source.

If both AUX and solar inputs are available and the mains is not, the J35 will draw power from both the AUX and solar inputs. As full charge approaches, one of these sources may dominate the other as appropriate.

Battery Charging

The J35 can simultaneously deliver up to 20A (**J35A**) or 35A (**J35B-L**, **J35D**) to the caravan battery and loads from the mains input source, with a maximum charging current of 15A (**J35A**) or 30A (**J35B-L**, **J35D**).

The maximum charging current will be reduced if loads 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.

When charging the battery from mains, the J35 applies a multi-stage charging process.

For charging from AUX and/or solar sources, the J35 monitors the battery voltage level and charges as needed.

Battery Health Preservation

The J35 preserves battery health by preventing the battery from excessive discharge. The J35 will start a two-stage shutdown or Low Voltage Disconnect (LVD), powering down all J35 outputs except for Air Suspension. This is to conserve remaining battery capacity until the battery can be charged.

⚠ WARNING

The Air Suspension output is not affected by LVD and will remain operational throughout. The remaining battery capacity will drain quickly if Air Suspension is engaged while the J35 is in LVD.

LVD MODE	LEAD ACID	LiFePO4 (J35B-L and J35D ONLY)
Sleep Mode	10.8V	12.0V
Storage Mode	10.5V	11.5V

Table 6: LVD Mode voltage thresholds

The J35 will enter the two stages of LVD, Sleep Mode and Storage Mode, when the caravan's battery voltage falls below the LVD thresholds.

SLEEP MODE

When in Sleep Mode, the J35 will provide power to the CAN bus. This allows you to continue to monitor battery consumption from the battery monitor. However, power to the load terminal block will be turned off and you will not be able to use your battery monitor to power caravan loads.

To exit Sleep Mode, start battery charging. The J35 will exit Sleep Mode when the battery is sufficiently charged. Upon exit of Sleep Mode, the J35 will automatically return to its previous state of operation.

When in Sleep Mode you may temporarily turn on caravan loads by cycling the caravan's Load Isolation Switch. This allows you to retract slide-outs or electric steps if you need to pack your caravan. This temporary switch on of the caravan loads may also be done by pressing the Battery icon on your battery monitor.

STORAGE MODE

When in Storage Mode, power to the CAN bus will be turned off, meaning there will be no communication or power to the accessories connected to the J35 CAN bus.

NOTE: The JHub Tablet (if in use) may continue to run on its internal battery for some time.

To exit Storage Mode, start battery charging. The J35 will exit Storage Mode when the battery is sufficiently charged. Upon exit of Storage Mode, the J35 will not automatically return to its previous state of operation. Caravan loads will need to be powered on manually.

When in Storage Mode you may temporarily turn on caravan loads by cycling the caravan's Load Isolation Switch.

Heavily Discharged Lead Acid Batteries

The J35 will not charge heavily discharged lead acid batteries.

In normal use, and with the J35 battery health preservation, batteries should never become heavily discharged.

If your battery is heavily discharged, disconnect it from the J35 and charge with a stand-alone charger. Reconnect the battery once the battery voltage has recovered to normal levels.

Heavily Discharged LiFePO4 Batteries (J35B-L / J35D)

The **J35B-L** and **J35D** 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 **J35B-L** or **J35D** will provide the voltage to restart the LiFePO4 battery's BMS and then commence charging of the LiFePO4 battery.

USING THE J35 AS A POWER SUPPLY (BATTERYLESS OPERATION)

The J35 will act as a power supply if the following conditions are met:

1. A battery is not connected to the J35, and
2. The J35 is connected and powered from mains, or
3. The J35 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 J35 provides an output voltage of 12.8V.

When powered from an AUX input, the output voltage will vary depending on the AUX input voltage.

FAULT PROTECTION

Overload or Short Circuit Protection

If an overload or short circuit is detected the affected output will shut down. The J35 will automatically attempt to restart the output every 30 seconds until the fault is removed.

Over-Voltage or High Internal Temperature Protection

If an overvoltage or high internal temperatures are detected the J35 will automatically turn off. Once the overvoltage is rectified, or the internal temperature drops to normal levels, the J35 may be restarted by cycling the mains input on and off.

Reverse Battery Protection

The J35 battery fuse and fuse fitted by your Jayco dealership at the battery protects from accidentally connecting the battery to the J35 in reverse polarity.

PAIRING WITH THE CONTROLNODE

To pair the ControlNode to your own personal mobile device:

1. Make sure that the ControlNode is connected to the J35 and that the J35 is powered on.
2. Turn on Bluetooth on your own personal device
3. Press the Pairing Button on the ControlNode. The LED Status Indicator on the ControlNode will flash green, indicating you have 30 seconds to pair to the ControlNode.
4. Launch the JHub App and press scan at the prompt.
5. The JHub App will now search for nearby ControlNode devices. A pop-up window will appear listing ControlNode devices available for connection.
6. Select the device with the number that corresponds to the last six digits of the serial number of the ControlNode you wish to pair to.

When successfully paired, the LED Status Indicator on the ControlNode will turn off and the Bluetooth Connectivity icon in the JHub App will turn blue.

The ControlNode can simultaneously pair to five mobile devices, including the JHub Tablet. If the ControlNode is already paired to and in Bluetooth range with five mobile devices, the LED Status Indicator on the ControlNode will flash orange for one second. The ControlNode will need to be cleared of devices in order to pair a new one.

For information on how to clear the ControlNode's memory, refer to **FAQs and Troubleshooting**.

SERVICING, MAINTENANCE AND STORAGE

SERVICING

The J35 and ControlNode contain hazardous voltages and energy hazards that may cause death or injury. Only qualified service personnel may service the J35 or ControlNode. Except where stated in the following sections, do not attempt to service the J35 or ControlNode yourself, OR dismantle, modify or repair the J35 or ControlNode yourself; this will void your warranty.

If your J35 or ControlNode requires servicing other than what is stated in this Owner's Manual, please consult your Jayco dealer for assistance.

SERVICEABLE FUSES

The J35 air suspension and battery fuse, if required, may be replaced by the owner. To further protect from short circuits or overloading, the dealership will have fitted a 40A fuse in-line with the caravan battery and a 30A fuse at the AUX input.

If any fuse continues to fail, please contact your dealership for guidance.

MAINTENANCE

Use a dry or moist cotton cloth to lightly remove dust or dirt from the J35. 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 J35 and disconnect the battery before cleaning.

STORAGE

Once your adventure is over be sure to charge the caravan's battery and power off all loads connected to the J35. Use the switch connected to the J35 Load Isolation 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 J35 or ControlNode? Contact our customer service team online at **teambmpro.com/technical-support**

JHUB APP

Is there a user guide for the JHub App?

You can access the JHub App User Guide from the settings menu of the JHub App. If you would like to know more about the features of the JHub App, download the JHub Tablet Owner's Manual from the teambmpro website.

BATTERY

I've fitted a battery to the J35, but it's not detected by my BMPRO battery monitor?

Check the following:

- The battery connections are tight and not loose or corroded.
- Battery polarity: red lead is positive, black lead is negative.
- The dealership fitted in-line fuse with the caravan battery is fitted and not blown. The correct value is 40A.
- The battery fuse on the J35 is fitted and not blown. The 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 LED Status Indicator on the J35 will flash a solid 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 J35 was put into Sleep Mode.

The J35 will be put into Sleep 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. Battery voltage is low. The J35 will enter Sleep Mode to conserve remaining battery voltage, which will disable power to caravan loads.
   Connect the J35 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 J35 will power down if the J35 was put into Storage Mode.

The J35 will be put into Storage Mode if:

1. The switch connected to the J35 Load Isolation input has been activated. This turns off power to all caravan loads and accessories connected to the J35 CAN bus, such as your battery monitor.
   Check that the switch has not been activated.
2. Battery voltage is very low. The J35 will enter Storage Mode to conserve remaining battery voltage, which will disable power to all caravan loads and accessories connected to the J35 CAN bus.
   Connect the J35 to a power source and begin battery charging.

Why is my solar output lower than expected?

If the battery is close to fully charged, the J35 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.
   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%.

CONTROLNODE

How do I clear the memory of my ControlNode?

To clear the ControlNode memory, press and hold the pairing button on the side of the ControlNode for 10 seconds.

While the memory is being cleared, the ControlNode LED Status Indicator will flash red.

Once the memory is cleared, the ControlNode LED Status Indicator will flash green.

When the memory on the ControlNode is cleared, the Bluetooth connection to all mobile devices paired to but not in Bluetooth range of the ControlNode will be lost. To use the JHub App on these devices again, they will need to be re-paired.

APPENDICES

J35 OPERATIONAL STATUS INDICATOR

The following details the operational status of the J35, as shown by the coloured flash of the LED Status Indicator on the J35.

		Colour Code	Flashing Status
White	Internal Error		On, Solid
	Identify Device		Flashes, 5 Times Quickly
	Storage Mode		Flashes Every 2min
Yellow: Charging	AC, Charging Normally		On, Solid
	AC, Low Battery Voltage		Flashes, 1 Time
	AC Connected, No Battery (**J35B-L** and **J35D** only)		Flashes, 1 Time
	Solar, Charging Normally		Flashes, 2 Times Quickly
	Aux, Charging Normally		Flashes, 3 Times Quickly
Green: OK	AC, Battery OK or No Battery		On, Solid
	Solar, Battery OK		Flashes, 2 Times Quickly
	Aux, Battery OK		Flashes, 3 Times Quickly
	Normal, No source present		Flashes, 1 Time
Red: Error	One (or more) Output is Overloaded		On, Solid
	Critical Fault		Flashes, 4 Times Quickly
	Solar Fault		Flashes, 3 Times Quickly
	Battery Fault		Flashes, 2 Times Quickly
	Over Voltage Fault, or High Temperature Fault		Flashes, 1 Time
OFF	J35 Powered Off		Off

BATTERY CHARGING MANAGEMENT ALGORITHM

The following describes the Battery Charging Management Algorithm used by the J35 when charging the caravan battery from a mains power source. The J35 will operate as described when the caravan loads are connected directly to the J35 and not the caravan battery.

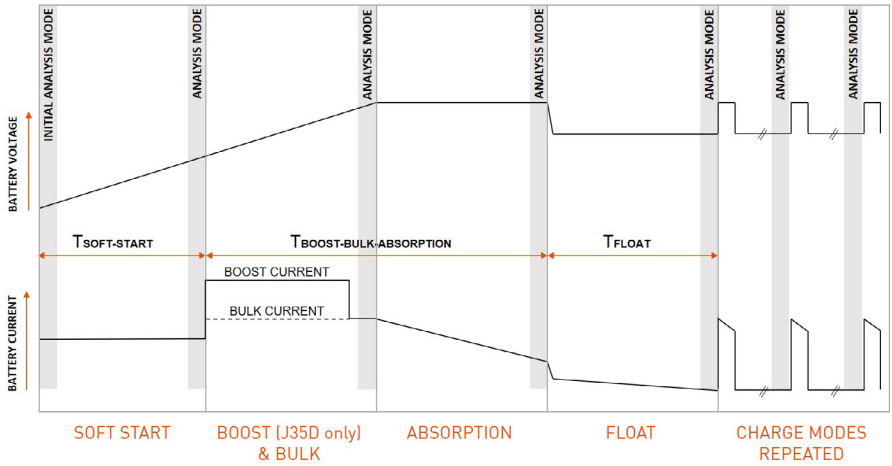


Figure 5: J35 Battery Charging Management Algorithm

Battery Capacity	Soft Start	Boost + 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 7: Timeout for each charging mode, based on battery capacity

Charge Mode	Voltage Limit (V) Lead Acid Battery	Voltage Limit (V) LifePO4 (J35B-L and J35D Only)	Current Limit (A)
Soft Start	12.0	12.0	10
Boost (**J35B-L** and **J35D** only)	14.0	14.0	30
Bulk	14.4	14.6	15
Absorption	14.4	14.6	15
Float	13.6	13.6	10

Table 8: Battery charging management algorithm voltages and currents

The J35's intelligently-controlled charging algorithm automatically sets charging parameters so that the caravan battery will maintain the best state of health.

CHARGING MODES

Soft Start Mode

Charging current is maintained at 10A until the battery voltage reaches 12V or soft start timeout (see table 7) occurs.

Boost Mode (J35B-L and J35D)

During Boost Mode, current is boosted to 30A to bring the battery voltage up to 14V, after which charging proceeds to Bulk Mode.

Bulk Mode

Charging current is maintained at 15A until the battery reaches the Bulk voltage (see table 8), after which charging proceeds to Absorption Mode

Absorption Mode

Battery is charged at Absorption voltage until the current drops below 2A or Boost-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 J35 will enter back into Boost-Bulk-Absorption modes.

SPECIFICATIONS

J35 BATTERY MANAGEMENT SYSTEM	J35A	J35B-L	J35D
Input Voltage Range	240 VAC ± 10% (nominal), 50-60 Hz		
Input Surge	< 40A (cold start)		
Output Current (Load + Battery Current)	20A	35A	
Factory Set Voltage (Float Voltage)	13.65 V +/0.1 V		
Output Ripple Voltage	< 150 mV		
Over Voltage Protection	< 18V		
Over Current Protection (Load + Battery Current)	20-25A	35-38A	
Battery Current Limit	15A	30A	
Low Voltage Disconnect Lead Acid	10.5 ± 0.2V		
Low Voltage Disconnect LiFePO4	-	11.5 ± 0.2V	
Battery Drain (when in Storage Mode)	< 8mA		
AC/DC Efficiency	> 83 %		
Cooling Fan	Thermally controlled		
Solar Input Current	-	<20A	<27A
Solar Input Voltage	-	15-25V	
Ambient Temperature	0-50°C		
Communication	CAN Bus		
Dimensions	307mm x 206mm x 68mm		
Weight	2 kg		
Standards	Safety: AS/NZS 60335.2.29 EMC: AS/NZS CISPR 14.1 Approval: RCM		
CONTROLNODE			
Input Voltage	8-15 V DC		
Battery Drain	< 21 mA		
Ambient Temperature	0-50°C		
Cable Length	0.5m		

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 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 J35 and ControlNode are 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** 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.

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