



OWNER'S MANUAL

# PXSHUNT500

## EXTERNAL SHUNT



TEAMBMPRO.COM

# SAFETY PRECAUTIONS

Please read the Safety Precautions before installing or using the PXShunt500. 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 device. If every consideration of these instructions has been satisfied, the device will be safe to operate.



Metal conducts electricity. Take care not to drop or touch metal objects onto the battery terminals. If contact is made, this may cause short circuits or lead to serious personal injury. Take care and remove unwanted metal objects from the vicinity of the battery. Remove any personal metal adornment such as chains, watches or rings before handling the battery.



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.



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.



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 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 if required. 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.



Product specifications are subject to change and improve without notice.

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# ABOUT THE PXSHUNT500

The BMPRO PXShunt500 provides wired battery monitoring for high current BMPRO power management systems.

Adding the PXShunt500 to a BMPRO power management system allows high current loads to be directly connected to the battery while maintaining accurate State of Charge and Time Remaining measurements.

The PXShunt500 is designed for 12V batteries up to 1200Ah in capacity and is rated for 500A of continuous current.

The PXShunt500 monitors the following battery properties:

- ▣ Voltage
- ▣ Charging/discharging current
- ▣ Energy usage (Ah)
- ▣ Temperature

The PXShunt500 is made up of two components: the XShunt500, and the PXGateway.

## **XShunt500**

The XShunt500 monitors battery properties such as voltage, charging/discharging current, energy usage and temperature. This information is sent to the PXGateway using the integrated communication cable.

## **PXGateway**

The PXGateway receives the battery data from the XShunt500 via a wired connection. It completes calculations using this data and sends it to the BMPRO power management system via a CAN communication bus.

The PXGateway has an additional CAN bus socket that can be used to connect to a BMPRO battery monitor, such as the BMPRO Odyssey or Trek3.

# DESCRIPTION OF PARTS

## XSHUNT500



1. Negative Battery Connection
2. New Negative Terminal Connection  
Connects to the load.

The new negative terminal has flat sides.

3. Mounting Holes
4. Temperature Sensor
5. ' + ' Positive Flying Lead
6. PXGateway Connection

PXGATEWAY

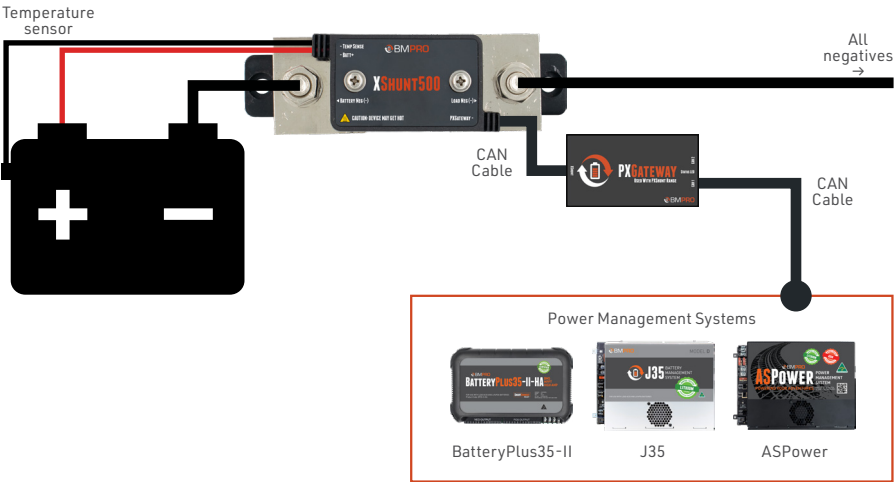


7. Recessed Status Indicator

8. CAN Bus Sockets

Used to connect to other BMPRO devices, such as a BMPRO power management system.

9. Socket Connection to XShunt500



# INSTALLING THE PXSHUNT500

## MOUNTING THE XSHUNT500

When installing the XShunt500 a cabled connection close to the battery is required.

The XShunt500 has two mounting holes.



Use two appropriately sized screws with a screw head no larger than 12mm to secure the XShunt500 to a solid surface. The type of screw required will depend on the surface material you are mounting the XShunt500 to.

Consider the length of the cables when determining a suitable place for the XShunt500 to be positioned.

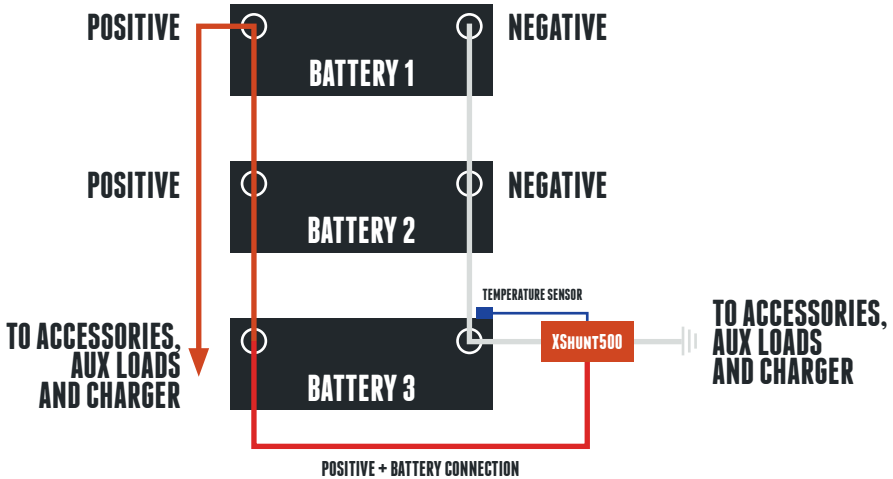
The XShunt500 has two terminals. Using these terminals, the XShunt500 is wired in series with the negative terminal of the battery being monitored and the negative battery loads.

The red '+' flying lead provides a connection to the positive terminal of the battery to power the XShunt500 and PXGateway.

The temperature sensor is used to measure the battery temperature and voltage and must be installed as close to the battery as possible.

## WARNING

Ensure that all loads connected to the battery are disconnected or turned off before beginning the installation to avoid sparks being generated.



## CONNECTING THE XSHUNT500 AND PXGATEWAY

To connect the XShunt500 and PXGateway:

1. Remove all the connections to the battery.
2. Connect the PXGateway to the BMPRO power management system CAN bus with the provided data cable.  
The data cable can be plugged into either CAN 1 or CAN 2 on the PXGateway.
3. Connect the communication cable from the XShunt500 to the port labelled XShunt on the PXGateway.
4. Connect the negative battery connection to the battery negative terminal using the connector provided or directly to the battery.

It is important that the correct terminal on both the battery and the XShunt500 is used.



5. Connect all negative load connections to the load negative terminal connection on the XShunt500.
6. Connect all positive load connections including the XShunt500's positive flying lead to the battery positive terminal.
7. Attach the temperature sensor to an appropriate position as close to the battery as possible.

Once these connections are made the BMPRO power management system and the PXShunt500 will be connected and will start transmitting data.

## TROUBLESHOOTING

### State of Charge Displayed on Power Management System is Not Correct

The state of charge calculation in BMPRO power management systems uses a learning algorithm to provide accurate data. It can take 3 charge and discharge cycles after either the initial installation or after a reset of the power management system for correct information to be available.




Check the following:

- ☐ Ensure you have all loads being powered on through the XShunt500.
- ☐ Check if the LED status light on the PXGateway is flashing green every 5 seconds.

For information about the LED status lights, refer to the section **PXShunt500 LED Status Indicators**.

### PXSHUNT500 LED STATUS INDICATORS

The LED will flash once every five seconds.

LED COLOUR	STATUS
	Normal operation
	One or more battery fault conditions detected: <ul style="list-style-type: none"> <li>☐ Voltage below 8V or above 16V</li> <li>☐ Battery current exceeding 500A</li> <li>☐ Battery temperature outside -20°C to 70°C range</li> <li>☐ No CAN communication between PXGateway and the power management system</li> </ul>
 No LED	Either: <ul style="list-style-type: none"> <li>☐ No power</li> <li>☐ No connection between the battery and the XShunt500</li> <li>☐ No connection between the XShunt500 and PXGateway</li> </ul>

# SPECIFICATIONS

BATTERY MONITORING SPECIFICATIONS	
Voltage Range	8V to 16V
Voltage Resolution	<20mV
Current Resolution	<200mA
Current Range	500A
Overload Protection (100ms without damage)	± 800A
Temperature Range (Battery Terminal)	-10°C to 50°C
Temperature Resolution	3°C
Maximum Capacity	1200Ah

GENERAL SPECIFICATIONS	XSHUNT500	PXGATEWAY
Input Voltage	8V to 16V	
Quiescent Current Drain (average)	<10mA	<20mA
Operating Temperature	-10°C to 50°C	
Humidity Operating	≤ 90% RH non-condensing	
Dimensions (Approx.)	156 x 46 x 47.5mm	90 x 52 x 24mm
Weight (Approx.)	1kg	150g
IP Rating	IP67	IP30



# WARRANTY TERMS AND CONDITIONS (AUSTRALIA)

Our goods come with guarantees that cannot be excluded under the Australian Consumer Law. You are entitled to a replacement or refund for a major failure and for compensation for any other reasonably foreseeable loss or damage. You are also 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.

This warranty is provided by SETEC BMPRO Pty Ltd (ABN) ("BMPRO") for its products. Warranty benefits are applied along with any rights and remedies required by Australian State and Federal legislation that cannot be excluded. No part of this warranty excludes, restricts or modifies any State or Federal legislation relating to the supply of goods and services which cannot be excluded, restricted or modified.

## WARRANTY

BMPRO warrants that the product will be free from any faults in materials and workmanship beginning from the original date of purchase under standard application, installation, use and service conditions, subject to the exclusions and limitations detailed below. The warranty period of the product is two years.

If, before the warranty period has ended, a fault occurs with the product and BMPRO finds the product is defective in materials or workmanship, BMPRO at its discretion will subject to further rights accorded by the Australian Consumer Law to either:

- Repair the defective product
- Replace the defective product
- Provide a refund to the purchaser for the price paid at purchase for the defective product.

## WARRANTY CLAIMS

Refer to your manual before using the product. Most BMPRO products are designed to be installed by a suitably qualified installer. The products should be carefully inspected by you or your installer before installation for any visible manufacturing faults. If a product has been installed incorrectly, BMPRO accepts no responsibility on top of our consumer guarantee obligations.

1. If a fault covered by warranty occurs, the purchaser must either contact the dealer where the product was purchased within 7 days, or BMPRO at the contact details listed.
2. All warranty claims must include: (a) proof of purchase of the product; (b) complete details of the alleged fault; (c) any relevant documentation related to the fault (such as photographs or maintenance records); (d) return material authorisation (RMA) number.
3. The product must be made available to BMPRO or its authorised installer for inspection and testing within 14 days of contacting BMPRO or the dealer.
4. The reasonable cost of delivery and installation of any products or components of products that have been repaired or replaced to the place of purchase notified to BMPRO is covered by the warranty provided by BMPRO, along with the reasonable costs of removal and return of any products determined by BMPRO to be defective.
5. If, on return to BMPRO or on investigation by BMPRO, inspection and testing determines there is no fault in the product, the purchaser must pay BMPRO's reasonable costs of testing and investigating the product, as well as transportation and shipping costs.

## REGISTER A WARRANTY OR REPAIR WITH BMPRO

To register a warranty or repair with BMPRO:

1. Lodge a support request via [teambmpro.com/technical-support](https://teambmpro.com/technical-support) or email [customerservice@teambmpro.com](mailto:customerservice@teambmpro.com)
2. If agreed with the BMPRO Product Specialist team, register a warranty claim or repair via [teambmpro.com/warranty-claim](https://teambmpro.com/warranty-claim) or email [customerservice@teambmpro.com](mailto:customerservice@teambmpro.com) to obtain a Return Material Authorisation (RMA) number.
3. 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.

4. Ensure your package also includes a copy of the proof of purchase, a complete description of the fault and your contact details including phone number and return address.

## EXCLUSIONS

This warranty will not be applicable where: (a) the product has been altered, modified or repaired by someone other than BMPRO, an authorised installer or a qualified auto electrician; (b) the product has not been installed properly by either the user or manufacturer; (c) BMPRO cannot establish a fault in the product after inspection and testing; (d) the product has been used for purposes other than that for which it was designed; (e) the fault in the product has occurred due to a failure by the purchaser to ensure proper use and maintenance of the product according to BMPRO's instructions, recommendations and specifications (including maintenance); (f) the product has been subjected to abnormal conditions, such as environmental, temperature, water, fire, humidity, pressure, stress or similar; (g) the fault has been caused by abuse, misuse, neglect or accident; (h) the fault has been caused by a power surge or other kind of fault in the supply of electricity; (i) unauthorised parts or accessories have been used on or in relation to the product; (j) the appearance of the Product has deteriorated; or (k) the fault is a result of common wear & tear.

## LIMITATIONS

No express warranties or representations are made by BMPRO other than what is set out in this warranty. The absolute limit of BMPRO's liability under this express warranty is the repair or replacement of the product or part of the product.

## CONTACT

BMPRO's contact details for warranty claims are:

SETEC BMPRO Pty Ltd  
19 Henderson Road,  
Knoxfield, VIC 3180  
Phone: (03) 9763 0962  
Email: [customerservice@teambmpro.com](mailto:customerservice@teambmpro.com)

Warranty Claim and Product Repair Form:  
<https://teambmpro.com/warranty-claim/>

Registering your BMPRO product is an important step to ensure that you receive all the benefits you are entitled to.

Please complete the online registration form at <https://teambmpro.com/product-registration/> for your new product today.

# LIMITED WARRANTY TERMS AND CONDITIONS (USA)

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

## WHAT THIS LIMITED WARRANTY COVERS

This warranty covers any defect or malfunction in your BMPRO product. Under this warranty you are entitled to have such goods replaced, repaired or refunded.

## WHAT THIS LIMITED WARRANTY DOES NOT COVER

- This warranty does not extend to product failures or defects caused by, or associated with, but not limited to:
- Failure to install or maintain correctly, unsuitable physical or operating environment, accident, acts of God, hazard, misuse, unauthorized repair, modification or alteration, natural disaster, corrosive environment, insect or vermin infestation and failure to comply with any additional instructions supplied with the product.
- BMPRO may seek reimbursement of any costs incurred when a product is found to be in proper working order or damaged as a result of any of the warranty exclusions listed above.
- BMPRO will not be liable for any costs, charges or expenses incurred in the process of returning a product to initiate a warranty claim.

## HOW LONG THE WARRANTY LASTS

BMPRO warrants products against defects for a period of two years, commencing from the original date of purchase.

## CLAIMS PROCESS

Proof of purchase is required before the product can be deemed to be within the warranty period.

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

A. Prior to returning a BMPRO product, please email [service@teambmp.com](mailto:service@teambmp.com) to obtain a Return Material Authorisation (RMA) number.

B. Package and send the product to:

**BMPRO WARRANTY DEPARTMENT  
UNIT 1 821 E WINDSOR AVE  
ELKHART IN 46514**

Please mark RMA details on the outside of the packaging.

C. Please ensure the package also includes: a copy of the proof of purchase, a detailed description of the fault and your contact details including phone number and return address.

## HOW STATE LAW APPLIES

This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

# COMPLIANCE

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna,
- Increase the separation between the equipment and receiver,
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected,
- Consult the dealer or an experienced radio/TV technician for help.

Warning: Any changes or modifications not expressly approved by BMPRO could void the user's authority to operate this equipment.

**POWERING YOUR ADVENTURES.**



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[customerservice@teambmp.com](mailto:customerservice@teambmp.com)

19 Henderson Rd, Knoxfield VIC 3180 Australia | Unit 1, 821 E Windsor Ave, Elkhart IN 46514 USA

[teambmp.com](http://teambmp.com)