DRIFTERBM

by BMPRO

OWNER'S MANUAL

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BATTERY MANAGEMENT TECHNOLOGY
THAT POWERS YOUR ADVENTURES.

Contents

Introduction

Safety Precautions

Please read the Safety Precautions carefully before installing.

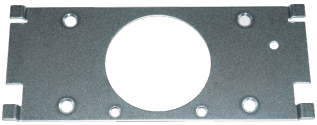
⚠ WARNING
This appliance is not intended for use by young children or infirm persons without supervision. Young children should be supervised to ensure that they do not play with the appliance.

⚠ CAUTION	Failure to observe these instructions properly may result in property damage or personal injury, which may be serious depending on the circumstances.
Ensure that cable connections have the correct polarity and are protected against accidental short circuit.	
Do not allow water or other liquids to enter the installation area.	

Accessories

The following accessories are provided with the retail pack for this product.

Owner's Manual



021386 Mounting bracket

019508 Battery Neg cable

019230 Current shunt

024901 Battery shunt cable, 9m

Refer to the installation section of this manual for details.

About the DrifterBM

Designed specifically for caravan applications, the DrifterBM is a display unit that monitors 12 V battery charge state. Its backlit LCD presents information such as:

- Battery voltage
- Current flowing in (charging)
- Current flowing out (discharging)
- Estimated battery charge status and the estimated time to discharge
- Time (digital clock) with am/pm

Features also include:

- Back light which can be set as a night light
- USB charger
- USB (on/off switch)
- Aux (on/off switch)

Names and Functions of Parts

① **Battery voltage**

② **Battery current**

③ **Battery charge state**

④ **USB charger**
Generic 0.9 Amp USB charger

⑤ **Warning annunciator**
Displays if battery voltage is low

⑥ **Battery time remaining**
while discharging at current discharge rate

⑦ **Switch status annunciator**
Displays if Aux is On/Off

⑧ **Battery state of charge**

⑨ **Aux Power Switch**

⑩ **Backlight Button**

⑪ **Displays the home screen**
Setup functions change the meaning of some fields; this button restores the display to normal functions

⑫ **USB Switch**

⑬ **Clock display**
Current time in 12 hour mode

Operation

In normal power-on mode the unit displays the Home screen. The various display elements of the Home screen are described below.

Description of Display Elements

Clock ⑬

This displays the time of day in 12-hour mode with AM/PM indication. To set the clock, refer to Clock Setting on page 7.

Time Remaining ⑥

This is the time remaining in the battery if it continues to discharge at the current rate.

- If the remaining time is 2 hours or less, the display shows the remaining time in minutes, alternatively the display shows the remaining time in hours.
- If the remaining time is greater than 199 hours, the display shows “>199 HRS”.
- If the battery is charging, the display is blank.

Charge State ⑧

This is a multi-segmented bar graph showing the state of charge of the battery. Above the bar graph is displayed the word “CHARGING” or “DISCHARGING” according to charging state of the battery.

Amps ②

This shows the charging current into the battery or the discharging current from the battery. To determine if it is a charging or discharging current it is necessary to refer to the Charge State indicator to the left of this field.

Volts ①

This displays the battery voltage.

Battery Volts Low ⑤

This indicator shows when the battery voltage is at or below 11.0 Volts (Default Setting). Low Voltage level is user settable.

Aux On ⑦

This indicator is displayed when switch ⑨ is in the down position.

Description of Switches and Buttons

Aux Switch ⑨

The Aux Switch is used to turn Aux loads on/off.

USB Switch ⑫

The USB Switch is used to turn USB charger on/off

A standard USB-style charger is integrated into the DrifterBM.

Charge current is limited to 0.9 A.

Home Button ⑪

The Home button is used

- in entering setup modes
- in changing settings
- to turn on the back-light

It has no other functions.

Back-light Button ⑩

The Back-light button is primarily used to enable display back-lighting. It is also used in entering setup modes and in changing settings.

Back-light Functionality

Turn on back-light temporarily: Press either the **Home** or **Back-light** buttons. The back-light will automatically turn off after 30 seconds.

Turn on Back-light Permanently: With the back-light off, press and hold the **Back-light** button until the back-light blinks (approximately three seconds).

Turn off back-light: Press the **Back-light** button. This cancels both temporary and permanent back-light display.

To change the back-light brightness press the back-light button 3 times. The back-light brightness will automatically scroll through the available brightness levels. Press the back-light button again at the desired brightness level.

Clock Setting

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. The minutes digits will start flashing, the “TIME” annunciator will be displayed, and all other non-relevant display segments are turned off.
3. Pressing the **Home** button will now toggle between setting the hours digits and minutes digits.
4. To increment the flashing digits digits, press the **Back-light** button.
   - Incrementing the minutes digits past 59 does not increment the hours digits.
5. To exit the Clock Setting mode, do not press any button for at least 15 seconds. When the display returns to its normal appearance, it means setup mode has been exited and settings saved.

Advanced Configuration

These parameters are factory set.

Unless you are changing batteries there is no need to enter this mode.

Enabling Parameter Set-up Mode

1. Ensure the display is in normal mode (not in any setting mode).
2. Press and hold the **Home** and **Back-light** buttons for at least 5 seconds.

   When Parameter Set-up Mode is entered:

   - The “SETUP” annunciator is on (near the AM/PM indicators)
   - The temperature digits show the parameter number
   - The clock digits show the parameter value
   - All other LCD segments are off.
3. Pressing the **Home** button displays the next parameter and its value. If the last parameter is displayed, pressing the **Home** button displays the first parameter. The available parameters are shown in Table 1: Setup Parameters below.
4. To increment the parameter value, press the **Back-light** button.
   - Incrementing past the maximum value causes the lowest value to be selected.
   - For some parameters holding pressed the **Back-light** button will force

a fast or slow increment of its value.

5. To exit the Parameter Setting mode, do not press any button for at least 15 seconds. When the display returns to its normal appearance, it means setup mode has been exited and saved.

Parameter Number	Description	Default Value	Range
1	Battery Capacity- the actual rated capacity of the battery in Ah.	100	7-999
2	Back-light Brightness	80	10-100
3	Battery operating temperature in °C	25	-20 – +50
4	Battery Under Voltage alarm point	11	10.5-12.5
5	Total Cycles on the Battery (Read Only)	0	0-999
6	Age of Battery in months (Read Only)	0	0-999

Table 1: Setup Parameters

Battery Capacity

This is the actual capacity of the battery in Amp-hours.

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.

As the DrifterBM learns the battery capacity, it will automatically update this parameter.

Battery Operating Temperature

This is the typical operating temperature of the battery in degrees Celsius. This helps improve the accuracy of the predicted time-remaining readout ③.

New Battery Installation

The DrifterBM unit is a smart battery monitor in that it 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, the capacity of the new one is likely to be much higher.

Fitting a new battery and doing nothing else will result in the “Time remaining” display initially being quite inaccurate. As the battery is charged and discharged during normal use, the DrifterBM unit will learn the battery capacity of the new battery.

It is recommended when installing a new battery or after any parameters changes to disconnect the DrifterBM from the green plug at the back of the DrifterBM display unit

Accelerated Capacity Learning

This procedure should only be used when an existing battery has been replaced with a new battery.

The general method the DrifterBM uses to quickly learn the battery capacity is to measure the Amp-hours required to flatten a fully charged battery. (“Quickly” is a relative term; we suggest you allow one to two days for this process.)

The detailed process we recommend is as follows:

1. Enter the Setup Mode and view the Battery Capacity parameter. It should be set to the manufacturer's rated capacity for that battery. e.g. 80 Ah
2. Charge the battery until the State of Charge reads 100%. Continue charging the battery for a further 12 hours. The battery is should now be fully charged.
3. Stop charging the battery. i.e. remove the 240V power.
4. Switch on loads (e.g. lights, TV etc.) until the battery is being discharged at 10% – 20% capacity rate.

   e.g. If you have an 80 Ah battery, 10% of 80 is 8, 20% of 80 is 16.
   So, adjust the loads until the battery current ⑨ reads between 8A and 16A.

   Note: When discharged at the 20% rate, the discharge time will be approximately 5 hours. At the 10% rate, the discharge time will be approximately 10 hours.

5. Wait until the battery has gone flat.

   If you are using the Drifter BM BM with a Genius-series power supply or a SETEC ST-series power supply, this will not damage the battery. Those power supplies have a low voltage disconnect which protects the battery from discharging to a damaging level. With these products the flat battery

state will be indicated by the battery current dropping to zero and there being no power to lights etc.

> **⚠ WARNING** **If using with a power supply without a low voltage cutout, you must monitor the battery voltage ① and, when it reaches 10.5 V, turn off the loads.**

When the loads are turned off, or when the low-voltage disconnect has been activated, the battery voltage will increase slightly—this is normal.

6. View the Battery Capacity parameter—it will have been updated to a new value. This new value is likely to be different to what was initially entered, but it is a better estimate of the actual battery capacity.
7. Repeat steps 2 to 5 once or twice more.
8. The capacity-learning process is now complete.

Connectors

At the rear of the Drifter BM BM are two connectors. The connector type and pin functions are defined in Tables 2 and 3 below.

Connector: Phoenix Contact MCV1.5/5-G-3.5 or equivalent		
Pin	Signal	Description
1	+Vs	Battery-voltage positive sense line
2	+Ve PWR	+12V connection to power the Drifter BM BM
3	0V PWR	0V connection to power the Drifter BM BM
4	-Is	Battery-current sense resistor, negative connection
5	+Is	Battery-current sense resistor, positive connection

Table 2: 5-way Connector

Connector: Phoenix Contact MCV1.5/9-G-3.5 or equivalent		
Pin	Signal	Description
1	Aux OUT	Positive connection of Aux
2	Aux +12V	+12V supply for Aux
3		Not used
4		Not Used
5		Not Used
6		Not Used
7		Not Used
8		Not Used
9		Not Used

Table 3: 9-way Connector

Note: The digit '1' is moulded into the rear of the DrifterBM case beside each connector, indicating the location of pin 1.

Installing The DrifterBM

Personnel

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

Installation Environment

The DrifterBM should be located indoors where it will not be subject to water or other liquid spills or splashes.

In addition, for the temperature display to be usefully accurate, the DrifterBM should be located where it will not be subject to hot or cold drafts. e.g. above a kettle is an undesirable location from both a moisture and temperature perspective.

Mounting

The DrifterBM is supplied with a mounting bracket for attaching to the wall.

- Mounting screws should be proud of the bracket by more than 1.8mm in order to allow the DrifterBM to fit on the bracket.
- The access hole to the wall cavity must be similarly sized to that in the bracket to provide clearance for the connectors at the back of the DrifterBM.
- See Figure 1 for details.

When wiring is completed and the connectors are mated to the unit, fit the DrifterBM as detailed in Figure 2.

If it is ever necessary to remove the DrifterBM from its mounting bracket, follow the instructions in Figure 3.

Batter Shunt Wiring

Important: To keep track of the battery capacity, this product needs to able to measure ALL current into and out of the battery.

This is achieved by connecting a current-sensing shunt between the battery negative terminal and all 0V connections.

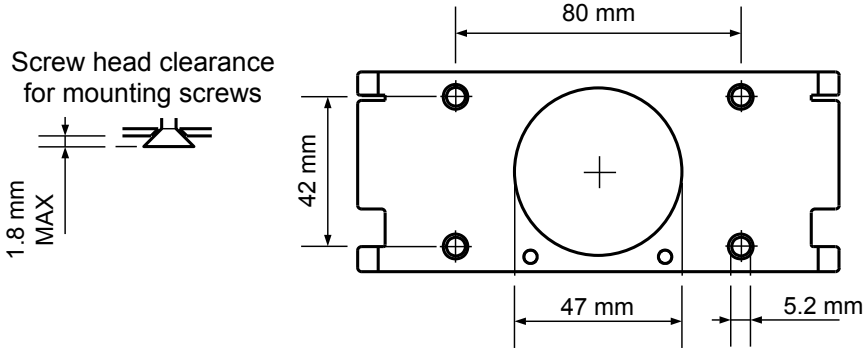
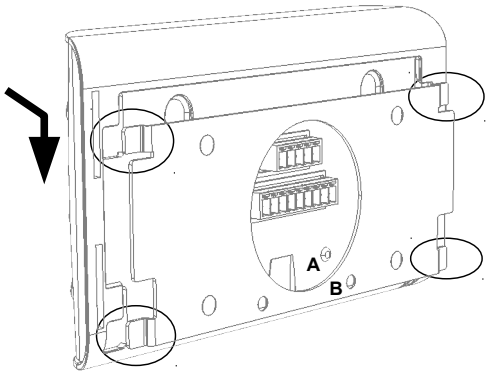
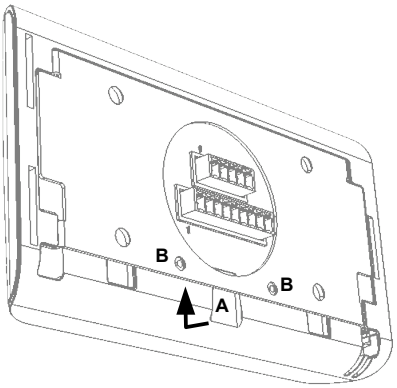


Figure 1: Mounting Bracket Details



Locate the DRIFTER over the four bracket tangs, then push down until dimple 'A' locks in hole 'B'.

Figure 2: Fitting DrifterBM onto mounting bracket



Insert flat-blade screwdriver into slot 'A' Gently lever case away from bracket enough for dimples 'B' to clear locating holes Then slide DRIFTER upwards.

Note: Some force may be needed to slide the DRIFTER upwards because it usually binds tightly on the four locating tangs.

Figure 3: Removing DrifterBM from mounting bracket

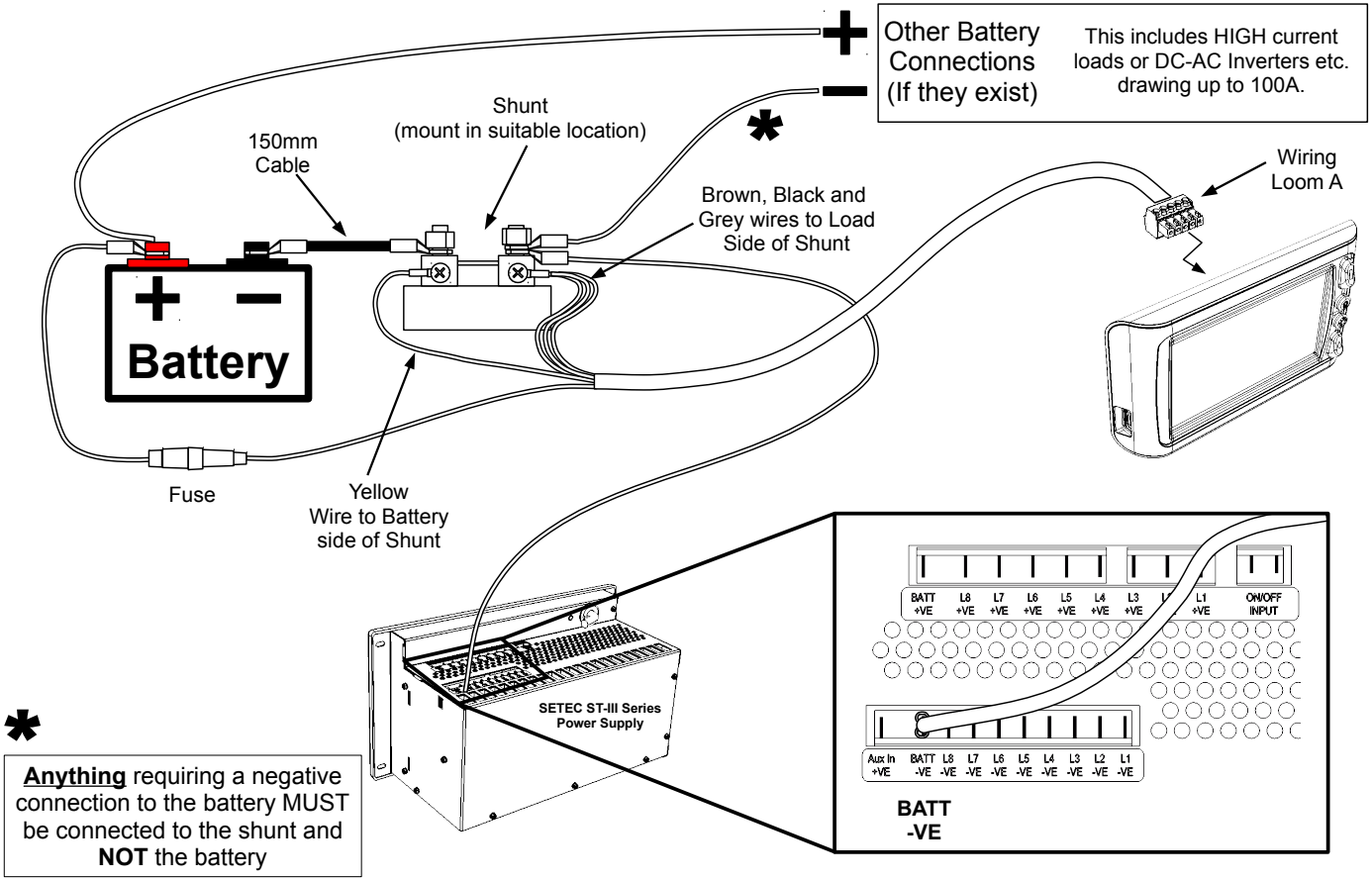


Figure 4: Battery Shunt Wiring

Servicing

There are no internal user serviceable parts.

Specifications

Input Voltage:	8 – 15 Vdc
Battery Drain:	< 3 mA (back-light off, no USB-attached device)
USB Output:	0.9 A max, charger only
Ambient Temperature:	0 C – 50 C
Size:	149 Wide x 85 High x 22 Deep

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 Setec dealer.

Warranty Terms and Conditions

The benefits provided to you under this warranty are in addition to any other rights or remedies you may have, as a consumer, under any other law which applies to Setec Pty Ltd products. Setec Pty Ltd goods come with guaranties that cannot be excluded under the 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.

Under this warranty Setec Pty Ltd agrees to repair or replace, at our cost, the product purchased by you in Australia if the product does not perform in accordance with the manufacturer's specifications during the period of this warranty.

The Drifter BM BM warranty is valid for a period of one year from the original date of purchase. Please retain your proof of purchase, as this will need to be provided should you wish to claim under this warranty.

To be able to claim under this warranty you must

(a) Ensure the product is installed by a suitably qualified person and is installed in accordance with this Owner's Manual and any applicable Australian Standard.

(b) The product must be operated in accordance with the instructions detailed in this manual.

(c) The product must be maintained in accordance with the instructions detailed in this manual.

What is excluded from this warranty? Cover for any damage, malfunction or failure resulting from incorrect installation, accidental damage, misuse, abuse, tampering, unauthorised repairs, unauthorised modification by any person, corrosive environment, or infestation by insects or vermin are excluded under this warranty and Setec Pty Ltd accept no liability for the same.

How to make a claim under this warranty.

(a) Contact Setec Pty Ltd on 03 9213 8400, or your Setec dealer, to obtain return authorisation.

(b) Package the product adequately to prevent any further damage, and send the product to location provided when you received your return authorisation.

(c) Please include with the product, proof of purchase, a detailed description of the fault, and your contact details.

Setec Pty Ltd may seek reimbursement of any costs incurred by them if a product is found to be in good working order.

Setec Pty Ltd accepts no liability for any loss or damage, which may occur as a result of improper or unsafe use of its products.

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