THE POWER OF

REDARC

Trailer Brake Controllers

EB, EBRH
EBTM & EB24A
TRAILER BRAKE CONTROLLERS

The Redarc Trailer Brake Controller range offers an easy to use method of controlling the electric brakes on your trailer.

The range of units feature easily adjustable gain control and an override button to apply the brake independently of the vehicle’s brakes. A bi-colour LED indicates that a trailer is connected and changes colour to indicate the level of braking force whilst the brakes are applied.

CONTENTS

Table of Contents

<table>
<thead>
<tr>
<th>Contents</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Specifications</td>
<td>01</td>
</tr>
<tr>
<td>1 EB - Standard Electric Trailer Brake Controller</td>
<td>02</td>
</tr>
<tr>
<td>1. Wiring</td>
<td>02</td>
</tr>
<tr>
<td>2. Operation</td>
<td>02</td>
</tr>
<tr>
<td>2 EBRH - Remote Head Electric Trailer Brake Controller</td>
<td>03</td>
</tr>
<tr>
<td>1. Installation</td>
<td>03</td>
</tr>
<tr>
<td>2. Operation</td>
<td>03</td>
</tr>
<tr>
<td>3 EBTM - Trailer Mount Electric Trailer Brake Controller</td>
<td>03</td>
</tr>
<tr>
<td>4 EB24A - Brake Controller Adaptor for 24V Vehicles</td>
<td>04</td>
</tr>
<tr>
<td>1. Wiring</td>
<td>04</td>
</tr>
<tr>
<td>5 Setting Electric Brakes to the Desired Level</td>
<td>04</td>
</tr>
<tr>
<td>6 Testing the Brake Controller</td>
<td>05</td>
</tr>
<tr>
<td>7 Warranty</td>
<td>06</td>
</tr>
</tbody>
</table>

Specifications

<table>
<thead>
<tr>
<th>Part Number</th>
<th>EB</th>
<th>EBRH</th>
<th>EBTM</th>
<th>EB24A</th>
</tr>
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The Redarc range of electric trailer brake controllers provide an easy to operate method of controlling electric brakes on a trailer, camper-trailer, boat trailer or caravan.

- A GREEN light from the LED indicator means that a trailer with electric brakes is plugged in.
- Application of the brakes from either the foot brake or the manual button on the controller will change the LED to a shade of RED.
- The shade of RED indicates to what level the brakes are applied.
- The adjustment knob will set the level of braking, for both the manual button and the foot brake.

**Note:** When a trailer is not connected the LED indicator will still glow RED when the brakes are applied.

### 1.1 Wiring

![Wiring Diagram](image)

- To Vehicle Brake Lights
- To Trailer Brakes
- Dash mount to controls for EBRH model.
- Circuit Breaker 25A
- Vehicle Battery
- Ground

### 1.2 Operation

- Pushbutton for emergency brake override. Pushing this button will apply the trailer brakes ONLY, to the level that has been set on the control.
- Brake level adjustment. Turn clockwise to increase braking level, anti-clockwise to decrease braking level.

- The LED glows GREEN when a trailer is connected.
- The LED glows a shade of YELLOW at half strength and RED at full strength when the brake is applied.
The EBRH model comes with the LED and controls connected via a cable to the unit. This allows mounting of the controls up to 500mm away from the main unit. The controls are small enough to be mounted in the dash through a standard push-out switch panel. The main unit can be mounted out of sight, and the controls will have minimal visual impact on the vehicle. The braking gain adjustment knob and the manual override pushbutton are the same control, which allows the operator to adjust the braking level whilst operating the manual override function.

2.1 Installation

![EBRH Installation Diagram]

2.2 Operation

![EBRH Operation Diagram]

This control adjusts Brake Level by turning the knob. Clockwise to increase the braking force, anti-clockwise to decrease the braking force. Pushing the control inwards will apply emergency override brakes for the trailer. This will apply the trailer brakes ONLY.

3 EBTM - TRAILER MOUNT ELECTRIC TRAILER BRAKE CONTROLLER

EB series brake controllers have the option of an encapsulated trailer mount unit.

- The EBTM is completely potted in a silicone elastomer to ensure protection against vibration and the weather.
- As the manual button is not needed, it has been removed and the EBTM requires an auxiliary 12V available at the trailer socket.
- Apart from this the unit operates as the standard EB does.
- Please confirm with your local transport authority regarding the usage for trailer mount electric trailer brake controllers in your state.
The EB24A is designed to operate a 12V brake controller in a 24V vehicle. It incorporates a 24V trigger wire which activates a 12V output to operate trailer brakes as well as an inbuilt 3A charge equaliser designed to keep your 24V batteries equal whilst you draw power from the 12V ‘centre tap’.

- Allows 24V brake lights to switch on the EB.
- Allows EB manual button to switch on 24V brake lights
- Provides 24-12V charging so braking power can be taken from one battery.

### 4.1 Wiring

![Wiring Diagram]

#### 5 SETTING ELECTRIC BRAKES TO THE DESIRED LEVEL

**Setup** - Set the braking force to the halfway point, the indicator should be pointing UP. (Warning - during travel, this may cause harsh braking, and possibly lock the trailer brakes. The initial setup should be done on a clear, quiet road whilst travelling slowly)

**Driving** - Begin by taking off slowly, maintain a constant speed then gently apply the vehicle’s brakes. The ‘Electric Brake Controller’ will engage and this will apply brakes to the trailer being towed.

**Adjustment** - Now adjust the braking force, while travelling, by adjusting the knob gradually **ANTI-CLOCKWISE** until the brakes engage at a comfortable level.

The ideal braking force will vary in relation to the type and condition of the trailer brakes, and the amount of load on the trailer.
This test procedure assumes all the mechanical aspects of the trailer brakes have been checked and are functioning correctly.

Before testing, ensure all wiring is correct.

**Four wires of the EB**

- White wire must be connected to vehicle system battery negative chassis/ground. It is important to check it is connected to the chassis - some vehicles have a metal panel under the dash that looks like a good ground but is in fact not connected to ground.
- Black wire must be connected to battery positive via a fuse (25 amp max), either directly to the positive battery terminal or via a relay operated by the ignition switch.
- Blue wire connected to the trailer brakes, via the service brake pin of the trailer socket.
- Red wire connected to a point that has battery voltage only when the vehicle brakes are on. Depending on individual vehicle wiring, this could be found on the brake light switch, the brake light relay or on the wire that connects to the brake lights. Please note the EB is not compatible if the vehicle has combined brake/tail lamp supplied by the same wire.

**Trailer brake wiring**

- The wire from the EB blue wire must be of adequate rating for the trailer brake current and must be connected to the service brake pin of the trailer socket only - not to any other circuit.
- The wire for the trailer brakes in the trailer must be connected to the service brake pin of the trailer plug only - not to any other circuit.
- The ground return wire of the trailer brakes must be connected to the common ground pin of the trailer socket either directly or via the trailer chassis.
- All joints and terminations must be sound and all wiring must be sound and adequately rated for the current draw of the brakes (allow approx 6 amps per braked axle).

To test EB with the trailer connected, the motor running, and the vehicle stationary:

1. With vehicle brakes on, measure battery voltage then measure the voltage on the EB black wire - it should be very close to battery voltage. If there is more than 0.1 volts difference the wire from the battery to the EB should be replaced with thicker wire.
2. Disconnect the EB blue wire and connect it to a suitable load (a filament lamp of 21 watts or more will work, but will only provide a partial indication). Apply the vehicle brakes and check that the lamp varies from nothing to full brightness as the knob is turned and the voltage should read over the range 0 to 95% of black wire volts. At the same time, ensure that the LED on the EB varies from green through yellow to red.
3. Re-connect the EB blue wire (with the lamp still connected) and re-test as above. If there is no or very low output voltage it may indicate there is a short circuit on the wire that the EB blue wire is connected to. This could be in the trailer socket/plug or on the trailer. In this case, see step 4 (unplugging the trailer and re-testing will show if the short is in the trailer).
4. If all the above are OK, take the cover off the trailer plug (so the pins are accessible with a meter) and plug the trailer plug in to the trailer socket. Have an assistant apply the vehicle brakes and, with the EB control set to maximum, measure the voltage on the service brake pin of the trailer plug. If it is more than 0.2 volts lower than the maximum voltage measured on the blue wire in step 2, the wire from the EB blue wire to the trailer socket should be replaced with a thicker wire.
TWO YEAR PRODUCT WARRANTY

Over the last three decades our company has established a reputation as the power conversion specialist. A 100% Australian-owned company, we have met the needs of customers in transport and other industries through exciting, innovative thinking. We believe in total customer satisfaction and practice this by offering our customers:
- Technical advice free of jargon and free of charge
- Prompt turnaround of orders throughout Australia and globally
- Friendly, personalised, professional service and product support

In the unlikely event that a technical issue arises with a Redarc product, customers are encouraged to initially contact the Redarc Technical Support Team on (08) 8322 4848 or power@redarc.com.au for prompt and efficient diagnosis and product support.

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 and non-refundable 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.

The benefits of this Warranty are in addition to other rights and remedies available at law in respect of the Products and shall not derogate from any applicable mandatory statutory provisions or rights under the Australian Consumer Law.

Redarc Electronics Pty Ltd and the Redarc Trust, trading as Redarc Electronics ("Redarc") offers a warranty in respect of its Products where the Products are purchased from an authorised distributor or reseller of Redarc by a person ("Purchaser"), on the terms and conditions, and for the duration, outlined below in this document ("Warranty").

1. In this Warranty, the term Products means:
   1.1 all products manufactured or supplied by Redarc (excluding its solar products which are covered by Redarc's Solar Product Warranty); and
   1.2 any component of or accessory for any Product in clause 1.1 manufactured or supplied by Redarc.

2. Offer and duration of product warranties
   2.1 Redarc warrants that its Products will be free, under normal application, installation, use and service conditions, from defects in materials or workmanship affecting normal use, for 2 years from the date of purchase (Warranty Period).
   2.2 Where a Product malfunctions or becomes inoperative during the Warranty Period, due to a defect in materials or workmanship, as determined by Redarc, then subject to further rights conferred by the Australian Consumer Law on the Purchaser, Redarc will, in exercise of its sole discretion, either:
      2.2.1 repair the defective Product;
      2.2.2 replace the defective Product; or
      2.2.3 provide a refund to the Purchaser for the purchase price paid for the defective Product, without charge to the Purchaser.
   2.3 The warranty given by Redarc in clause 2 covers the reasonable costs of delivery and installation of any repaired or replaced Products or components of Products to the Purchaser's usual residential address notified to Redarc, together with the reasonable costs of removal and return of any Products determined by Redarc to be defective.
   3. If the Purchaser incurs expenses of the nature referred to in clause 2 in the context of making a claim pursuant to this Warranty that is accepted by Redarc, the Purchaser will be entitled to claim reimbursement of those expenses which Redarc determines, in exercise of its sole discretion, to be reasonably incurred, provided that the claim is notified to Redarc in writing at the postal address or email address specified in clause 31 and includes:
      3.1 details of the relevant expenses incurred by the Purchaser; and
      3.2 proof of the relevant expenses having been incurred by the Purchaser.

4. Exclusions and limitations
   4.1 This Warranty will not apply to, or include any defect, damage, fault, failure or malfunction of a Product, which Redarc determines, in exercise of its sole discretion, to be due to:
      4.1.1 normal wear and tear or exposure to weather conditions over time;
      4.1.2 accident, misuse, abuse, negligence, vandalism, alteration or modification;
      4.1.3 non-observance of any of the instructions supplied by Redarc, including instructions concerning installation, configuring, connecting, commissioning, use or application of the Product, including without limitation choice of location; and
      4.1.4 failure to ensure proper maintenance of the Product strictly in accordance with Redarc's instructions or failure to ensure proper maintenance of any associated equipment or machinery.
   4.2 Any replacement or repair of Products will be undertaken by a person ("Purchaser") who is not an authorised distributor or reseller of Redarc. The Purchaser will be entitled to claim reimbursement of those expenses which Redarc determines, in exercise of its sole discretion, to be reasonably incurred, provided the claim is notified to Redarc in writing at the postal address or email address specified in clause 21 and includes:
      4.2.1 details of the relevant expenses incurred by the Purchaser; and
      4.2.2 proof of the relevant expenses having been incurred by the Purchaser.

5. Conditions
   5.1 The Products are warranted in accordance with the conditions of the applicable Product Manual and as set out below.

6. Warranty claims in respect of a Product must be made in writing to Redarc at the postal address or email address specified in clause 21 within the Warranty Period. Such claims must include the following:
   6.1 details of the alleged defect or fault and the circumstances surrounding the defect or fault;
   6.2 evidence of the claim, including photographs of the Product (where the subject of the claim is capable of being photographed);
   6.3 the serial number of the Product, specified on the label affixed to the Product; and
   6.4 proof of purchase documentation for the Product from an authorised distributor or reseller of Redarc, which clearly shows the date and place of purchase.

   The return of any Products without the prior written instructions of Redarc will not be accepted by Redarc.

8. Without limiting any other clause in this Warranty, Redarc has the right to reject any Warranty claim made by a Purchaser pursuant to this Warranty where:
   8.1 the Purchaser does not notify Redarc in writing of a Warranty claim within the Warranty Period;
   8.2 the Purchaser does not notify Redarc in writing of a Warranty claim within 1 month of becoming aware of the relevant circumstances giving rise to the claim, so that it cannot determine whether the claim is valid; and
   8.3 the serial number of the Product has been altered, removed or made illegible without the written authority of Redarc;

   8.4 the Purchaser is unable to provide proof of purchase documentation in accordance with clause 7.4 or evidence that the Product was properly installed and used in accordance with the instructions of Redarc.

9. If the Product is found to be working satisfactorily on return to Redarc or upon investigation by Redarc, the Purchaser must pay Redarc's reasonable costs of testing and investigating the Product in addition to shipping and transportation charges. Where Redarc is in possession of the Product, the Product will be returned to the Purchaser on receipt of the amount charged.

10. Any replaced Products or components of Products shall become the property of Redarc.

11. Redarc may, in exercise of its sole discretion, deliver another type of Product or component of a Product (different in size, colour, shape, weight, brand and/or other specifications) in fulfilling its obligations under this Warranty, in the event that Redarc has discontinued manufacturing or supplying the relevant Product or component at the time of the Warranty claim, or where such Product or component is superior to that originally purchased by the Purchaser.

12. Other conditions of Warranty
   12.1 If the Purchaser acquired a Product for the purpose of resupply, then this Warranty shall not apply to that Product.
   12.2 In particular, the sale of a Product via an online auction, online store or other internet website by any person who is not an authorised distributor or reseller of Redarc. The Purchaser will be entitled to claim reimbursement of those expenses which Redarc determines, in exercise of its sole discretion, to be reasonably incurred, provided the claim is notified to Redarc in writing at the postal address or email address specified in clause 21 and includes:
      12.2.1 details of the relevant expenses incurred by the Purchaser; and
      12.2.2 proof of the relevant expenses having been incurred by the Purchaser.

13. In particular, the sale of a Product via an online auction, online store or other internet website by any person who is not an authorised distributor or reseller of Redarc. The Purchaser will be entitled to claim reimbursement of those expenses which Redarc determines, in exercise of its sole discretion, to be reasonably incurred, provided the claim is notified to Redarc in writing at the postal address or email address specified in clause 21 and includes:
      13.1 details of the relevant expenses incurred by the Purchaser; and
      13.2 proof of the relevant expenses having been incurred by the Purchaser.

14. A Purchaser shall only be entitled to the benefit of this Warranty after all amounts owing in respect of the Product have been paid.

15. While Redarc warrants that the Products will be free from defects in materials and workmanship in the circumstances set out in this Warranty, to the maximum extent permitted by law Redarc does not warrant that the operation of the Products will be uninterrupted or error-free.

16. To the extent permitted by law, Redarc's determination of the existence of any defect and the cause of any defect will be conclusive.

17. Spare parts or materials for the Products are guaranteed to be available for a period of at least 2 years after purchase of the Products.

18. The agents, officers and employees of any distributor or reseller of the Products and of Redarc are not authorised to vary or extend the terms of this Warranty.

19. Redarc shall not be responsible or liable to the Customer or any third party in connection with any non-performance or delay in performance of any terms and conditions of this Warranty, due to acts of God, war, riots, strikes, warlike conditions, plague or other epidemic, fire, flood, blizzard, hurricane, changes of public policies, terrorism and other events which are beyond the control of Redarc. In such circumstances, Redarc may suspend performance of this Warranty without liability for the period of the delay reasonably attributable to such causes.

20. If a clause or part of a clause in this Warranty can be read in a way that makes it illegal, unenforceable or invalid, but can also be read in a way that makes it legal, enforceable and valid, it must be read in the latter way. If any clause or part of a clause in this Warranty is illegal, unenforceable or invalid, that clause or part is to be treated as removed from this Warranty, but the rest of this Warranty is not affected.

Redarc's contact details
21. Redarc's contact details for the sending of Warranty claims under this Warranty are:
   Redarc Electronics Pty Ltd
   23 Brodie Road (North), Lonsdale SA 5160
   Email: power@redarc.com.au
   Telephone: +61 8 8322 4848