**Smart Start® SBI**

**TWO YEAR WARRANTY**

This Two Year Warranty is subject to and shall not derogate from any mandatory statutory provisions to the contrary. In particular, the Two Year Warranty does not exclude, restrict or modify any condition or warranty that cannot be excluded by applicable legislation, including without limitation consumer protection legislation.

Redarc Electronics Pty Ltd (the “Redarc Trust trading as Redarc Electronics” ("Redarc") warrants to the original purchaser of the product(s) on the reverse side of this sheet (“Product”) that any Purchaser from an authorized distributor or reseller (“Purchaser”), that the Product will be free, under normal use and maintenance, from defects in materials and workmanship affecting normal use for a period of TWO YEARS from the date of purchase (“Warranty Period”), subject to the conditions set out below ("Warranty").

1. **Warranty**

   1.1 This Warranty is non-transferable. Redarc will at its sole discretion either replace or repair a Product that is defective in materials or workmanship within the Warranty Period without charge to the Purchaser. To the extent permitted by law, Redarc’s determination of the cause of any defect will be conclusive.

   1.2 While Redarc warrants, where applicable, that the Product is free from defects in materials and workmanship under normal use at the time of delivery, Redarc does not warrant that the Purchaser will meet any user specific requirements or that the operation of the Product will be uninterrupted or error-free.

   1.3 To the extent permitted by law, this Warranty contains the whole of Redarc’s obligations and any distributor or the agents, officers and employees of such distributor and of Redarc are not authorised to vary or extend the terms of this Warranty.

2. **Warranty void**

   Any of the following circumstances will render this Warranty void:

   2.1 Failure to ensure proper maintenance of the Product or any associated equipment or machinery.

   2.2 Failure to pay for the Product in full or comply with Redarc’s Trading Terms.

   2.3 If the Purchaser sells, leases or otherwise parts with possession of the Product.

   2.4 If the Purchaser moves the Product to a new site.

3. **Deemed second hand sales**

   The sale of the Product via an online auction (such as eBay), online store or other internet website by a party that is not an authorized distributor or reseller of the Product will be deemed to be a second hand sale and will render this Warranty void, in accordance with paragraph 2.3 of this Warranty, as Redarc has no control over the storage, handling, quality or safety of products sold by such persons.

4. **Exclusions**

   This Warranty shall not apply to, or include, any of the following:

   4.1 Any defect, damage, fault, failure or malfunction due to accident, misuse, abuse, movement of the Product to a new site, negligence, non-observance of any of the instructions supplied with the Product or the execution of the Operating Instructions or local regulations on the part of the Purchaser, unless cooperated, improper installation or connection, faulty power supply, normal wear and tear, or any occurrence outside of Redarc’s control.

   4.2 A Product that is not installed or maintained strictly in accordance with the Operating Instructions.

   4.3 A Product that is installed, repaired or serviced by a person who is not a qualified auto electrician or electronics technician, or not approved parts have been fitted.

   4.4 A Product that is used other than for any reasonable purpose for which it was manufactured, or is used in a way not specified by Redarc.

   4.5 Deterioration due to normal use and exposure, including abnormal environmental conditions such as lightning strike, flood and extreme heat.

   4.6 Any freight, packing and insurance expenses relating to transportation of the Product.

   4.7 Any expenses relating to installation and/or removal of the Product.

   4.8 Any indirect or incidental damage of whatever nature.

5. **Purchaser’s obligations**

   5.1 The Purchaser must retain proof of purchase documentation for the Product.

   5.2 Installation and maintenance of the Product and associated equipment and/or machinery is the responsibility of the Purchaser. The Purchaser must retain evidence that the Product was installed, and that proper maintenance has been performed on the Product, by Redarc or a qualified auto electrician or electronics technician, in accordance with the Operating Instructions.

   5.3 The Purchaser must operate the Product in accordance with all of the Operating Instructions.

   5.4 Upon discovery of a defect the Purchaser must return the Product to the distributor with full details of the nature of the defect. A written report describing the circumstances of failure must accompany the returned Product with proof of purchase which clearly shows the date and the place of such purchase by the Purchaser.

   5.5 The Purchaser must pay for the transportation charges, and insurance the shipment or accept the risk of loss or damage during such shipment and transportation.

6. **Free technical assistance**

   Contact Redarc Electronics Ph (08) 8322 4848, Fax (08) 8387 2889 or Email power@redarc.com.au

**Specifications**

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Dimensions (mm)</th>
<th>Weight(kg)</th>
<th>Voltage System</th>
<th>Off Volts</th>
<th>On Volts</th>
<th>Max Cont. A</th>
<th>Max Inrush A</th>
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<tbody>
<tr>
<td>SBI12</td>
<td>75L x 63W x 80H</td>
<td>0.2</td>
<td>12 Volt</td>
<td>12.7V</td>
<td>13.2V</td>
<td>100 Amps</td>
<td>400 Amps</td>
</tr>
<tr>
<td>SBI24</td>
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<td>24 Volt</td>
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<td>26.4V</td>
<td>100 Amps</td>
<td>400 Amps</td>
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<td>SBI212</td>
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<td>0.6</td>
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<td>600 Amps</td>
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<td>SBI224</td>
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<td>24 Volt</td>
<td>25.4V</td>
<td>26.4V</td>
<td>200 Amps</td>
<td>600 Amps</td>
</tr>
</tbody>
</table>

**General Specifications**

**Basic Operation**

The Smart Start® SBI is a microprocessor controlled Smart Battery Isolator. The Smart Start® SBI is designed specifically for use in multi battery applications as a solenoid priority system to protect the start battery from being excessively discharged by auxiliary loads, while still allowing the auxiliary battery to supply non essential loads. Put simply, once the start battery is charged by the alternator, the Smart Start® SBI will connect an auxiliary battery to the charge circuit. Similarly, if the start battery voltage drops too low, the Smart Start® SBI will disconnect any auxiliary batteries or loads to conserve change in the start battery.

**Power Saving Technology**

The Smart Start® SBI microprocessor uses Power Saving Technology to control the solenoid. This enables the Smart Start® SBI to run cooler and use less energy.

**Fault Recognition**

If there is a fault during operation of the Smart Start® SBI, it will, through a series of flashes from the LED, indicate the fault type.

**Protector Caps**

The Smart Start® SBI comes with protector caps for the battery terminals, to guard against accidental short circuits.

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[Redarc Electronics Pty Ltd] [Sheet for Dual Battery Isolator Smart Start® SBI Instruction Sheet-A5-5.pub]
Standard Installation Instructions

1. Mount the Smart Start® SBI in a convenient location near the start battery bank. Do not mount in direct engine heat.
2. We recommend installing a fuse close to and connected to the positive terminal of both batteries. Refer to the chart below for suggested ratings.
3. Connect one end of cable of the correct size to the start battery terminal of the Smart Start® SBI. Refer to the chart below for suggested cable size.
4. Connect the opposite end of the cable installed in step #3 to the other end of the start battery positive (+) fuse.
5. Connect one end of a new cable of correct size to the auxiliary battery terminal of the Smart Start® SBI. Refer to the chart below for suggested cable size.
6. Connect the opposite end of the cable installed in step #5 to the other end of the auxiliary battery positive (+) fuse.
7. Make sure the auxiliary battery is properly grounded to the vehicle chassis.
8. Ground Connection. Connect the Smart Start® SBI ground terminal to chassis ground. Remove any paint to ensure a good ground contact. Note: A good ground will ensure correct switching voltage.
9. LED Connections (optional). We suggest installing an external LED indicator on the dashboard of the vehicle. Connect a wire from the “Override” terminal of the Smart Start® SBI to the positive end of an indicator LED (15mA limited current draw) or LED/resistor combination as specified in diagram. See Standard Setup Below. Note: a resistor must be used if “Override” switch is connected. Connect the negative end of the LED to the chassis ground. This lamp will illuminate when the Smart Start® SBI is activated.
10. Start Assist Feature (optional). We suggest installing the Start Assist switch on the dashboard of the vehicle. Connect a wire from the “Override” terminal of the Smart Start® SBI to a momentary push button switch. Connect the opposite end of the momentary push button switch to the auxiliary battery supply. It is recommended to fuse this wire. To manually operate the Smart Start® SBI, hold the momentary push button switch and the Smart Start® SBI will manually operate until the switch is released.
11. Checking the Operation: The Smart Start® SBI should now be operational. Start the vehicle or apply a charge to the main battery. Once the main battery voltage rises the Smart Start® SBI will activate, you will hear the solenoid click and see the LED illuminate. Now turn off the vehicle or remove the charge to the main battery. The Smart Start® SBI will disconnect the auxiliary battery once the voltage on the main battery drops, you will hear the solenoid click and the LED will go out. Note: The amount of time it takes for the battery voltage to drop low enough for the solenoid to turn off will vary due to battery condition, age and state of charge. For a new, fully charged battery, it may take days. Note: See table on first page for specific voltage levels.

WARNING! Do not make any connections to the control terminals found on the front of the unit.

Standard Setup

<table>
<thead>
<tr>
<th>Model</th>
<th>Wire Length</th>
<th>Start Feature with Push button Override</th>
<th>No Override</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Wire</td>
<td>Wire</td>
</tr>
<tr>
<td>SB11/ SB12</td>
<td>Up to 2m</td>
<td>130 Amps</td>
<td>60 Amps</td>
</tr>
<tr>
<td></td>
<td>Up to 5m</td>
<td>190 Amps</td>
<td>60 Amps</td>
</tr>
<tr>
<td>SB11/ SB12</td>
<td>Up to 3m</td>
<td>200 Amps</td>
<td>120 Amps</td>
</tr>
<tr>
<td></td>
<td>Up to 6m</td>
<td>250 Amps</td>
<td>120 Amps</td>
</tr>
</tbody>
</table>

CABLE SIZE & FUSE CHART

<table>
<thead>
<tr>
<th>Model</th>
<th>Wire Length</th>
<th>Start Feature with Push button Override</th>
<th>No Override</th>
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<tbody>
<tr>
<td></td>
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<td>SB11/ SB12</td>
<td>3m to 5m</td>
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<tr>
<td></td>
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</tr>
<tr>
<td>SB11/ SB12</td>
<td>3m to 5m</td>
<td>200 Amps</td>
<td>120 Amps</td>
</tr>
<tr>
<td></td>
<td>4m to 6m</td>
<td>250 Amps</td>
<td>120 Amps</td>
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</tbody>
</table>

CODE 1: 2 FLashes (Over-Voltage Detection)
If the batteries connected to either terminal of the Smart Start® SBI should rise above 15.5 volts (31 volts on a 24 volt system), the Smart Start® SBI will:
- Disconnect, if connected, to isolate the source of over-voltage.
- Flash the LED 2 times for 20 seconds, then reassess the fault condition, continuing until the fault is cleared.
- This fault mode serves the purpose of protecting the good battery and informing the user.
- This fault is caused by either a faulty charger or alternator.

CODE 2: 3 FLashes (Voltage Drop / Excessive Current Draw Fault)
If the Smart Start® SBI detects a voltage drop across its contacts of greater than 1 volt for more than 1 second (caused by excessive current or a serious fault), then the unit will:
- Immediately protect itself by disconnecting the auxiliary battery; and
- Repetitively flash the LED 3 times for 20 seconds, then reassess the presence of a fault. This will continue until the fault is cleared. This fault may be caused by excessive current or an internal fault in the Smart Start® SBI.