

Solar Energiser

AG ELECTRONICS

Installation Manual

PTESB2

Solar Energiser



Electronic Design & Manufacture



Thank you and congratulations on buying your SB2 solar energiser. Make a cuppa, sit down, and take the time to read the following manual; it may make the difference between success and frustration.

If at any time you require help, please call us on 1800 249 642 (for Australian customers). Whatever the question, we are there to help.

Please complete the "Purchased From" and "Date" parts of the warranty card. Keep the card. (Keeping receipt and card together will suffice.) Please leave the warranty card in the box and store it in a safe place in case you need to return the unit for service at some later date.

DANGER. Risk of Shock.

High voltages exist inside the electric fence energiser enclosure and on the fence terminal.

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2 Features

2.1 Features

- High quality solar panel
- Integrated battery – no external battery required.
- Always ready to use with free power from the sun
- Easy mount - Steel post, wood post, star picket
- Easy to carry
- Light weight: approx. 2.5 kg
- Rugged
- Moisture and ant resistant
- Designed and made in Australia
- Normal / slow or “Automatic” speed setting. Automatic setting is normal during the day and slow at night.

2.2 Specifications

Power	0.2 Stored Joules
Input Voltage	5 to 7.5V
Battery	6V 3.4ah Panasonic LC-R063R4PU, Yuasa NP3-6 OR 6V 4.3ah Panasonic LCR064R2P, Yuasa NP4-6
Battery Drain	Normal 25mA Slow 16mA

2.3 Parts of the Energiser



1. Carry Handle
2. Mounting bracket
3. Support to set solar panel at 45°
4. Energiser case
5. Solar Panel
6. Fence (red) connection binding post
7. Ground (green) connection binding post
8. On/Off switch
9. OK indicator

3 Important notes – PLEASE READ

3.1 Electric Fences

1. Electric fences are not toys; do not let children play with them.
2. Electric fence should be signed: every 10m in areas with public access, every 1 km in rural areas.
3. Electric fences must have an earth. An electric fence earth is one or more piece/s of metal (eg. Star picket) hammered into the ground.

3.2 Sunlight for the SB2

1. Mount the SB2 so that the solar panel is facing the noon sun (north and angled at 45 degrees) see the bracket mounting instructions below.
2. The SB2 solar panel needs as much direct sunlight as possible, preferably full sun all day. The SB2 is a solar powered energiser and, unlike small solar powered items such as calculators, solar energisers **need direct sunlight** to generate enough electricity to charge the battery.
3. The solar panel also needs to be clean to operate properly, clean off dust etc. using a damp cloth.

3.3 SB2 battery and storage

1. The SB2 contains a rechargeable sealed lead acid battery (SLA). SLA battery life is shortened considerably if it is
 - a) left in a discharged state or
 - b) exposed to high temperatures.
2. When not in use store the SB2 in such a way as to allow the panel to get as much light as possible, say on a window sill with the panel facing out. Take the SB2 out into sunlight for a few hours once every month to keep the battery from self discharging.

3.4 Other

1. Keep the SB2 from being immersed in water and out of extreme heat.
2. Be aware that thieves target solar powered items, a padlock may be useful in securing the SB2 to a fence post.

4 Installation

4.1 Unfold the mounting bracket.

Step 1

Pull the support up and rotate.



Step 2

Keep rotating the support so that it is now upside down.



Step 3

Keep rotating the support so that it's free end tucks into the base of the metal attached to the energiser case.



4.2 Mounting Options

1. Slide over a Star picket. The carry handle can be used to support the energiser at the top of the picket. Alternately a 'pin insulator' will prevent the mounting bracket from sliding down the picket.



2. Bolt to a round pipe for a more permanent job.



3. Put two, 8 gauge screws into timber or masonry 5cm apart and slide the keyholes over the screw tops.

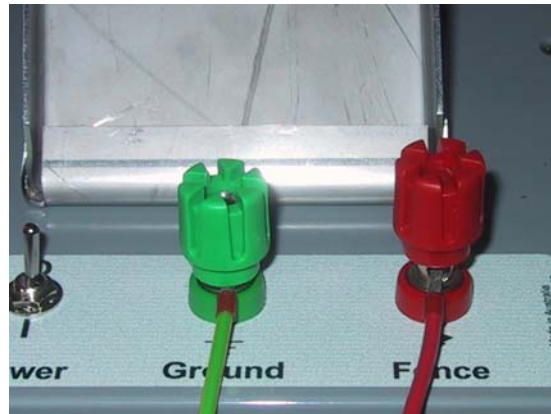


4.3 Connecting to the fence

1. The picket, pole or post that the energiser is mounted to can become the 'corner post' for the fence. Poly tape, poly wire or wire for the fence can begin at this post, but separated from it with an insulator. If using pigtail posts or such that do not require insulators, begin fence from the first of these adjacent to the mounting post.

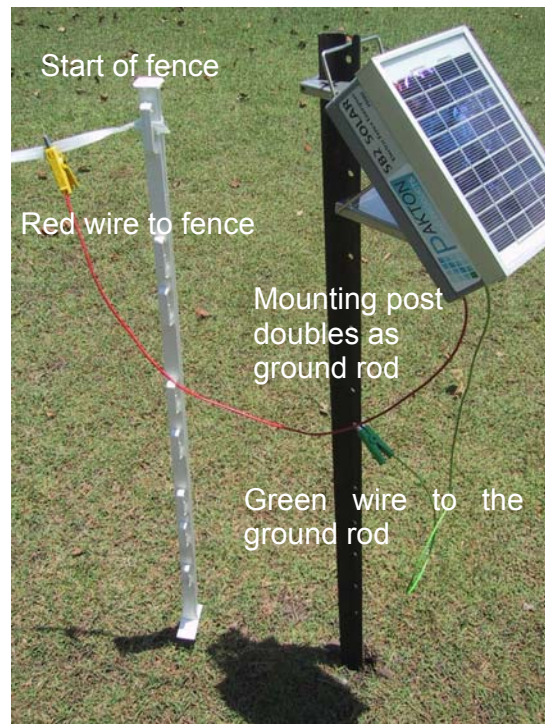
2. Connect the earth wire to the energiser by inserting the end of the green wire through the hole under the green 'GROUND connection binding post' (part 5 of energiser) and turning the knob until the wire is held firmly.

(Twist the binding posts anti-clockwise to reveal the hole through the post under the knob)



Connect the fence wire to the energiser by inserting the end of the red wire through the hole under the red 'FENCE connection binding post' (part 4 of the energiser) and turning the post until the wire is held firmly.

3. Connect the red clamp to the start of the fence. Clip the green clamp to a ground rod (the corner post if it is a star picket, or another metal post or picket that has been hammered at least a half meter into the soil)
4. Turn the energiser ON.



5 Operation

5.1 Electric fences

Electric energisers work by placing a short, high voltage pulse on fence wires. Although the voltage is very high (up to 10,000V) the pulse is too short to cause electrocution. The result is a zap similar to a static electricity shock from a car seat.

The high voltage comes from the Fence terminal of the energiser and is connected to the fence wire or electric fence tape to make a “live” or “hot” wire. Live wires must be insulated (eg. with insulators) from earth or any conductive material touching earth (eg. fence posts).

The other connection on the energiser is the earth (or ground). Electric fences need an earth (ground) to complete the circuit: When anything touches the live wire current will flow from the live wire, through the animal to ground back to the earth and into the energiser earth terminal.

You should not feel a shock from the solar panel of the SB2 or from the earth connection or earth rod. If you do, the earth is probably not sufficient. An electric fence earth is some metal in contact with the soil. The more metal in the ground the better, the more moist the soil the better. The larger the fence the more earth is required.

The SB2 is capable of powering up to 2klm of single wire fence. For best results place the energiser in the middle of long lines of fence.

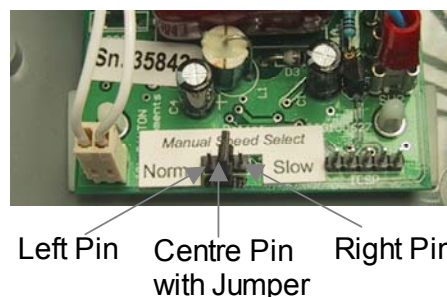
To test the fence and the earth, use an electric fence voltmeter or Power Probe.

5.2 Speed setting

The SB2 has 3 speed options.

- 1) Normal = 50 pulses per minute
- 2) Slow = 30 pulses per minute
- 3) Automatic

The factory setting is automatic, this means the unit will run normally during the day and slow at night. (The Jumper is on the centre pin only)



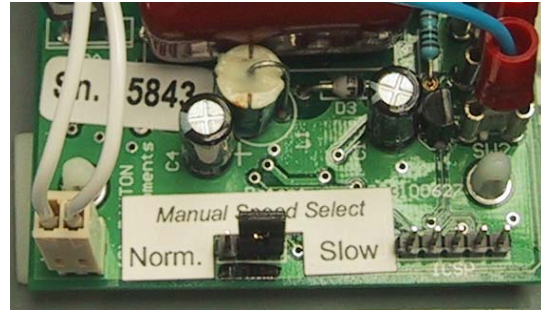
These settings are accessible by opening the case. Since care is needed to ensure the waterproof seal is not broken it is advised to NOT change this from the factory default.

The settings are determined by the position of a jumper that is placed over 3 pins:

Normal (Jumper over centre and left pins)



Slow (Jumper over and centre and right pins)



6 Trouble shooting

6.1 Common Problems

The most common problems with electric fence energisers are:

- Flat batteries
- Moisture
- Ants
- Lightning

If the output from the SB2 is very weak or it stops as soon as the sun sets (and it has been getting 8 hours or more sun a day), the battery may need replacing. The battery is a sealed lead acid 6V 3.4 or 4.3ah. Open the unit and read the battery **ah** and **part number** before ordering a new one. These are available from the manufacturer or through the store where the SB2 was purchased. This type of battery is also readily available through general electronics stores and hardware stores. See section 6.3 below.

6.2 Error codes

If the SB2 detects a problem it may stop and show an error code: The LED indicator will blink rapidly.

2 blinks means the battery is flat, allow the battery to recharge.

3 or more blinks is a service fault. Switch the unit off and on again, if the problem persists return the unit for repair.

6.3 Changing the battery.

Attention: Take Care: Risk of electrical shock!

Notes:

- The battery must be a rechargeable sealed lead acid battery, never use non rechargeable batteries.
- The battery should last up to 5 years depending on average temperature and usage, are you sure it needs replacing?
- Lead acid batteries should be recycled, not sent to land fill. Send it back to the manufacturer if unsure.
- If you don't feel confident in changing the battery, or can't find the correct replacement please call us, for a small fee we will be happy to service your unit.

Steps

1. Place the SB2 face down on a bench or table. **Note:** the solar panel may have sharp edges which will scratch a smooth surface.

2. Turn the SB2 off. Ensure it cannot be bumped to the "ON" position while you are working on it.
3. Unscrew the four main case screws.
4. Pry the back off, note there is an O'ring seal. The seal may be stuck to either or both surfaces. If it comes out of the groove simply press it back in.
5. Disconnect the battery leads.
6. Remove the old battery.
7. Place the new battery in and secure it in the same way as the original was secured.
8. Reconnect the battery leads.
9. Replace the cover ensuring the o'ring seal is in the groove and cables are NOT pinched between the lid and case.

7 Warranty

7.1 Length of Warranty

Pakton Technologies Pty Ltd supports the SB2 energiser with a 2 year Warranty. Battery warranty is 12 months from date of purchase. The Solar Panel comes with a 20 year warranty against loss of power.

7.2 Warranty Records

Please complete the "Purchased From" and "Date" parts of the warranty card. Keep the card. (Keeping receipt and card together will suffice.) Please leave the warranty card in the box and store it in a safe place in case you need to return the unit for service at some later date.

7.3 For assistance

For more information on electric fences please see www.pakton.com.au

If at any time you have problems, difficulties or require help, please call our FREE HELP LINE: 1800 249 642 (within Australia only and not from mobile phones). Whatever the question, we are there to help.

If repairs are needed return the SB2 Energiser to Pakton Technologies Pty Ltd along with your proof of purchase, or contact the store of purchase or distributor.

Alternatively, phone fax or email your questions or comments to Pakton:

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