

Quick Start User Manual for JVA Integrated Solar Energizers SV2 • SV5 • SV10 (Including the RSG1 Internal Battery Energizer)





Introduction

Welcome to the shocking world of JVA electric fencing and thank you for placing your faith in our product range. In doing so you have joined the worldwide body of satisfied JVA users who are benefiting from our products. Please note: This booklet is an abridged version of the full JVA ***Electric Fence Installation and User Manual*** which can be found on our web domain www.jva-fence.com, and is intended just to assist you to install your unit. For full information on your unit please consult our website.

Before commencing with your installation please also note that an electric fence is a psychological fear barrier that works on the principle of giving an animal a very short duration, powerful, yet safe shock that will discourage the animal from making contact with the fence again. It is therefore important that an animal gets a good shock the first time it makes contact with the fence. So, do not rush animals at the fence and make sure the fence is operating at full capacity when introducing new animals to electric fences.

Installation Instructions

For SV2, SV5, SV10 Integrated Solar Energizers and RSG1 Battery Unit

1. Opening up and getting ready

- On opening the box and removing your solar energizer, make sure that your solar panel is plugged into the energizer. The internal battery will have already been connected at the factory. (Only applicable to solar powered energizers.)
- Check that you have a mounting bracket in the box.
- Have your mounting post ready. This can be a wooden pole or metal standard.
- The unit needs to be left in full, direct sunlight for a day to ensure that the batteries are fully charged before use.

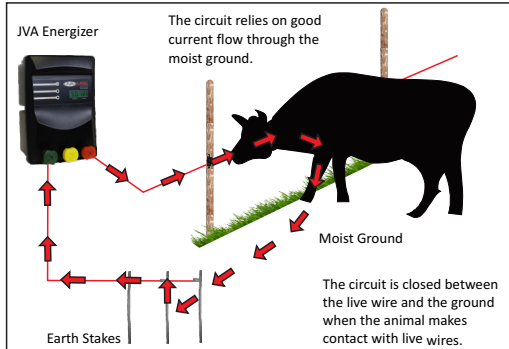
2. Positioning the energizer

- If the unit is to be used on a permanent electric fence layout, try to position the unit as centrally as possible. This will reduce the load on the unit.
- If the unit is to be used for strip grazing, it is generally placed at the end of the line where the poliwire reels are located.
- Solar energizers must be placed in direct sunlight facing towards the equator. (North in the southern hemisphere and south in the northern hemisphere).
- Keep solar panels clean.

3. Basic Electric Fence Circuits

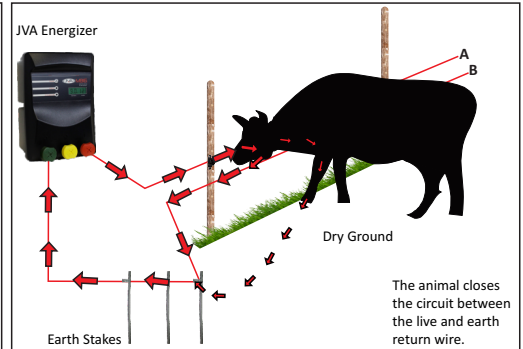
It is important to understand the basic circuits applicable to electric fencing. An electric fence comprises three components: the energizer, the earthing system and the fence itself. Connect the three together and you have your basic circuit. An animal touching the fence closes this circuit which allows the electricity to flow through the circuit and thus shock the animal.

Basic Circuit for Moist Conditions



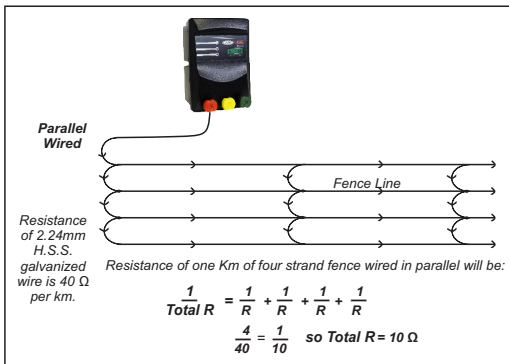
Moist ground is a good conductor of electricity, so in this circuit the electricity will flow from the Energizer, along the wire, through the animal closing the circuit, back through the ground to earth electrodes and on up into the energizer, thereby completing the circuit and delivering the shock.

Basic Circuit for Dry Land Conditions

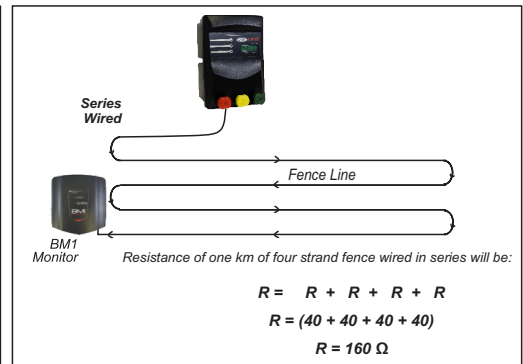


Dry ground is a poor conductor of electricity. In this circuit one adds an earth return wire (B) to the fence. The animal now closes the circuit between the live wire (A) and earth return wire (B) and so one does not rely on the poorly conductive, dry ground to close the circuit.

Parallel vs Series Wired Circuits



Parallel wiring reduces the resistance of the fence line, thereby enabling it to deliver a more powerful shock but it is less sensitive to shorting. This makes it more suitable for livestock control but less suitable for security fences.



Series wiring results in one long wire, thereby increasing the resistance of the fence. This circuit is generally used for security fencing. Short out any wire and the monitor will trigger an alarm.

The Earthing System: DOs and DON'Ts of Earthing

We cannot stress enough the importance of good earthing. A poor earth system will greatly reduce the effectiveness of your electric fence. For strip grazing fences on irrigated pastures a galvanized earth stake at the energizer should suffice. For permanent electric fences see below.

DO

- > Insert at least three 1,2m long earth stakes at the energizer
- > Place the earth stakes 1,2m apart
- > Connect the earth stakes together by using a single length of underground cable
- > Keep earth stakes at least 2m away from any mains power
- > In an urban area, install additional earth stakes every 30m
- > In rural areas, install additional earth stakes every 100m

DON'T

- > Connect more than one energizer to an earth stake
- > Connect your energizer earth to Eskom or Telkom's earth stakes
- > Allow the earth system to touch any part of a building
- > Connect the earthing system to water pipes
- > Insert earth stakes where they can be tripped over
- > Use unlike metals e.g copper to galvanized, as this will cause electrolysis

Parts of the Energizer

SV5 and SV10

1. On/Off Button
2. Red status LED – indicates fence overload or energizer fault
3. Energizer On and O.K. light (Green)
4. Red high-power fence connection terminal
5. Green ground/earth connection terminal
6. LCD Liquid Crystal Display (Only on SV5 and SV10)
7. Model number
8. Solar panel mounting bracket. (Not with RSG1 unit)
9. Solar panel (Only on SV2, SV5 and SV10 units)

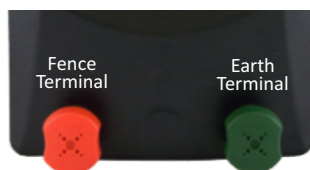


RSG1

1. On/Off Button
2. Fence O.K. indicator (red LED)
3. Energizer On and O.K. indicator (green LED)
4. Rubber O-ring seal between front and back case pieces
5. Power cable extends from base of case
6. Fence connection terminal
7. Earth connection terminal
8. Model number

Fence Connectors

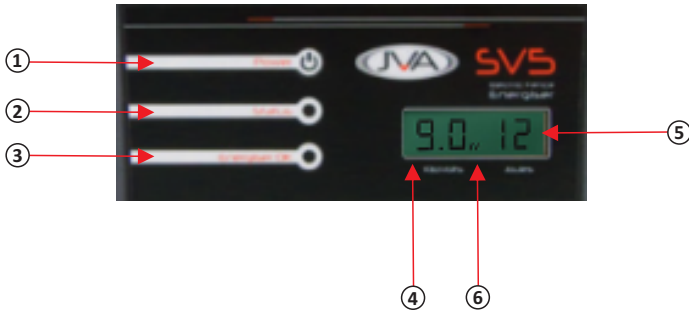
Red Fence Terminal connects energizer to the live wires in the fence



Green Fence Terminal connects energizer to earth stakes



JVA SV5 and SV10 LED and LCD Displays



1. Power Button

- If the energizer is off, push the power button to turn on
- If the beeper is giving an audible warning, push the button to silence the beeper for 10 minutes.
- If the energizer is on, push the button to switch off.

2. Status Red LED – This LED has multiple functions:

- Slow flash (once per pulse) – fence overload
- Flashes twice (two per pulse) – Battery low
- Flashes an error code if internal error causes the energizer to shut down.

3. Energizer O.K. Green LED – Flashes with each pulse to show the energizer is operating correctly.

4. Kilovolts Display – Shows the voltage on the output terminals. The higher the voltage the more effective the fence.

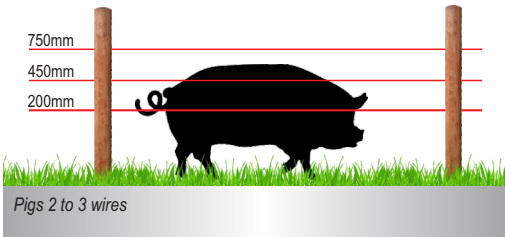
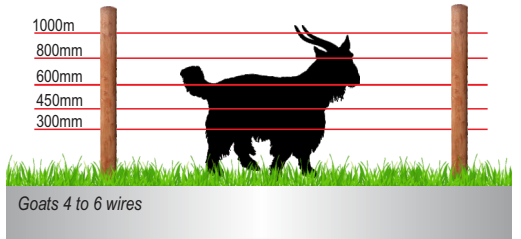
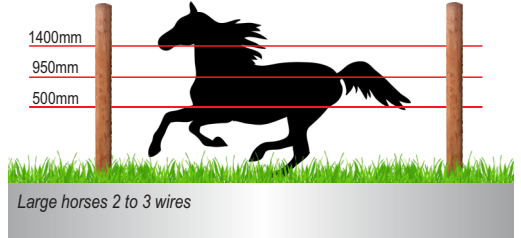
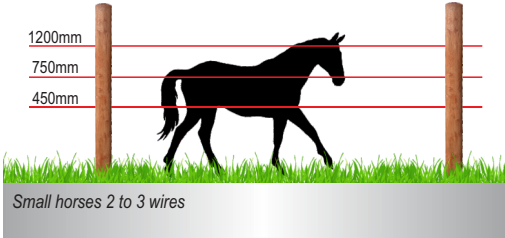
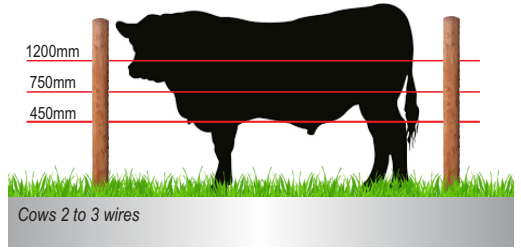
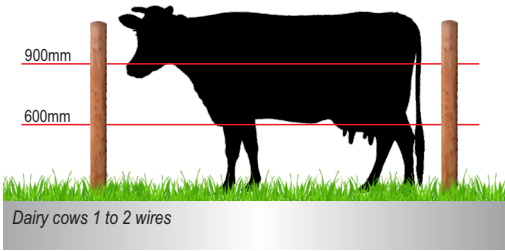
5. Joules Display – Shows how much energy the energizer is storing for each fence pulse.

6. Power Supply Voltage – When the energizer is switched off, it will display the power supply voltage. This is useful for quickly checking what the battery voltage is.

Lightning

All JVA energizers are fitted with surge protection to protect them from lightning. However, nature is extremely powerful so, we strongly recommend that lightning diverters be installed on a permanent electric fence line. Regrettably even these will not protect the unit from a direct strike. (See installation instructions that come with a JVA lightning diverter or www.jva-fence.com/videos/jvalightningdiverter.)

Fence heights and wire spacings



Rule of Thumb: Position the live wire at nose or shoulder height to the animal you intend to control.

Warranties

The warranties on JVA products are product related and range from three months to ten years. For example, porcelain and GFT insulators are ten years whereas the manufacturer's warranty on 7amp Hr batteries is only three months.

JVA energizers carry a two-year warranty against faulty workmanship or component failure operating under normal conditions. Acts of Nature such as lightning, flooding, fire or damage caused by inappropriate usage, repairs conducted by non-JVA certified technicians or malicious damage to the energizers will nullify the warranty.

Basic Fault Finding

If the voltage on the fence line drops below an acceptable level, follow these steps:

1. Disconnect the energizer from the fence and check:

- The energizer – If it works, the fault is on the fence line.
- If not, check that the energizer is plugged in and the mains is on;
- That the battery is charged and the charger is working;
- That solar panels are clean and are charging.

If all these are correct then the energizer is faulty and may require repairing.

2. Reconnect the energizer and check the earthing system.

(See *Earthing* on web site)

3. Check the lightning diverter – may be blown.

4. Check the feed-out to the fence-line – may be damaged.

5. Using your cut-out switches and volt meter isolate the section of fence where the fault is located.

6. Walk this section of fence to locate the fault. It could be:

- Broken or twisted wire
- Excessive competition from vegetation
- A broken or cracked insulator
- A tree branch fallen on the fence
- A cut-out switch left open.

Fault finding is greatly facilitated by using a JVA Directional Volt Meter.



Law and Safety

The laws and safety regulations vary from country to country and we recommend that you check the regulations applicable to your country. Below are some general regulations applicable to countries that have adopted the IEC 60335-2-76 standards.

- Ensure that the energizer has a *Certificate of Compliance (COC)*
- An electric fence must not be powered from two different energizers.
- Place the energizer out of the reach of children.
- Do not electrify barbed or razor wire.
- Ensure that the design of the fence cannot lead to entrapment.
- Warning signs must be attached and prominently displayed, on the fence.
- Some countries require barrier fences where the general public may inadvertently make contact with the fence. (Check local bylaws.)
- All joints must be securely clamped with line-clamps or solder.
- Lead-out, return and communication cables must not be in the same channelling.
- Follow manufacturers' recommendations or local specifications re: earthing.
- Only qualified or competent persons should operate the electric fence.
- Do not remove the energizer casing with the mains power connected.
- If in doubt consult IEC 60335-2-76 or local bylaws concerning electric fencing.



The JVA range of agricultural and security electric fence energizers are the result of a joint venture between the Australian company, *Pakton Technologies* and South African company, *Ndlovu Fencing (Pty) Ltd.* With a combined experience of well over 40 years in the industry, and drawing on experiences from operating in some of the hardest agricultural and security environments around the globe, JVA produce a comprehensive range of both agricultural and security energizers that meet the needs of both markets. For full particulars of our ranges of energizers and accessories visit:

www.jva-fence.com

www.jvasecurity.com

