



ELECTRIC FENCE SYSTEMS

SHOCK DON'T SHOOT



AN INTRODUCTORY GUIDE TO ELECTRIC FENCING FOR WILDLIFE CONTROL

www.jvasecurity.co.za

WELCOME TO THE 'SHOCKING' WORLD OF JVA WILDLIFE ELECTRIC FENCING



JVA's Premises – Jet Park, South Africa



JVA's Premises – Brisbane, Australia

INTRODUCTION

JVA Technology is a jointly owned South African/Australian high-tech company, based in Johannesburg and Brisbane, that specializes in the design and development of the highly successful JVA Range of Monitored Electric Fence Energizer Systems for security and animal control purposes.

Africa and Australia provide tough testing grounds for electric fencing equipment and designed in close conjunction with leading wildlife experts and specialist electric fence installers, and working on many of our country's premier game reserves, it is not surprising that the feature-rich JVA range of wildlife energizers is now a market leader in the world of wildlife monitored electric fencing.

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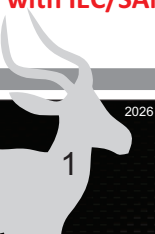
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WHAT IS ELECTRIC FENCING AND HOW DOES IT WORK?

A pulsed wildlife electric fence can best be described as a '*psychological fear barrier*' which works on the principle of giving an animal a short, sharp, powerful, yet safe shock that is sufficiently painful to deter the animal from making contact with the fence again.

(Note: All JVA energizers have been tested by an internationally approved test laboratory and certified that they comply with IEC/SANS60335-3-76:2006 safety standards and requirements.)

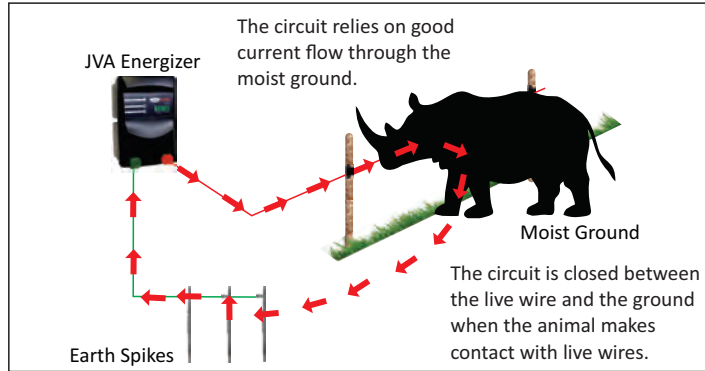


BASIC PRINCIPLES OF ELECTRIC FENCING

An electric fence system comprises of three components: the energizer, the earthing system, and the electrified fence line. Link the three together and one has a circuit through which the electricity can flow.

ELECTRIC FENCE CIRCUITS

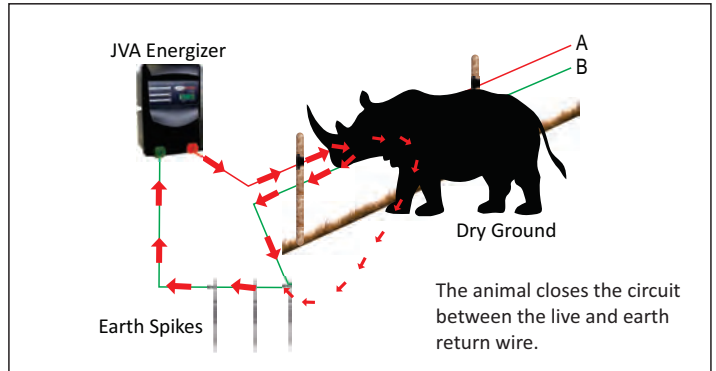
Basic Circuit for Moist Conditions



All live wire configuration

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 the earth electrodes and on up into the energizer thereby completing the circuit and delivering the shock.

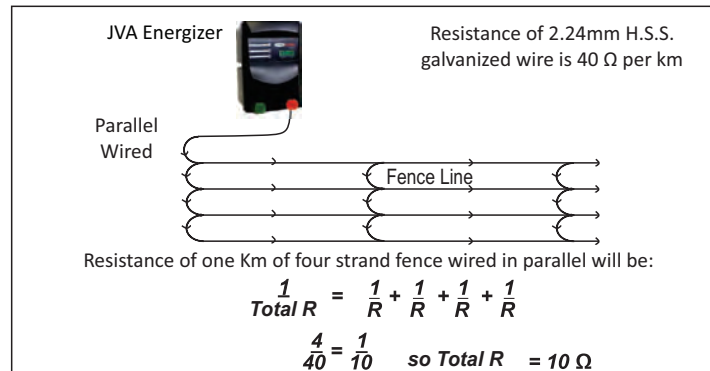
Basic Circuit for Dry Land Conditions



Live/Earth wire configuration

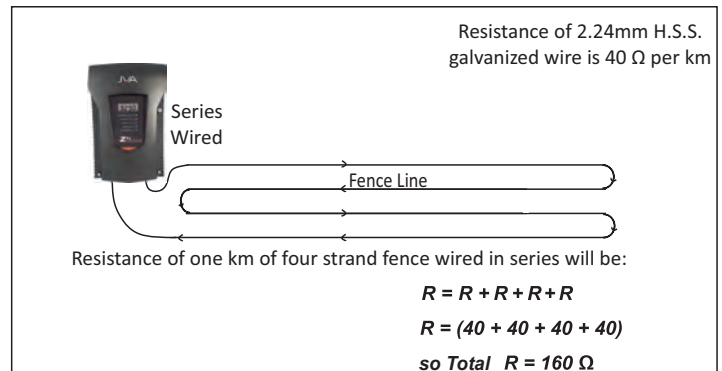
Dry ground is a poor conductor of electricity. In this circuit one adds an earth return wire (B) to the fence. The animal now closes the circuit between the live wire (A) and earth return wire (B) and so one does not rely on the dry soil to return the electron flow.

FENCING WIRING CONFIGURATIONS



Parallel wired

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



Series wired

Series wiring results in one long wire thereby increasing the resistance of the fence. This circuit is generally used for security fencing. The monitor will trigger an alarm if any wire is cut or 'shorted'.



For more information on wiring configurations visit <http://www.stafix.co.za/howto7.html>

The Earthing System

We cannot stress enough the importance of a good earthing system.

Do's and Don'ts of Earthing

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 the 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.



For more information on earthing visit <http://www.stafix.co.za/earhting.html>

WHAT TO LOOK FOR WHEN CHOOSING AN ENERGIZER

- **The energizer must have a COC and an LOA.**
(Certificate of Compliance and a Letter of Authority)
These are legal requirements.
- **Is there mains power available?**
This will dictate if the energizer can be mains powered or whether one will need a battery or solar powered energizer.
- **What is the length of the fence line?**
This will determine the size of the energizer required.
- **Is it a dry or moist area?**
- **Will one encounter much competition from vegetation?**
Again, this will help determine the size of energizer required.
- **Is the unit required for perimeter fencing or internal usage?**
For example a boma or lodge protection.
- **Is the fence line to be monitored for security purposes?**
This will dictate the level of sophistication required.
- **What species of game are to be controlled?**
- **Are spares and backup service readily available?**
- **Does the company supplying the product have a sound track record?**



HOW TO DETERMINE THE POWER OUTPUT OF AN ENERGIZER

The power output of an energizer is determined by its joule rating. The higher the joule rating, the more powerful the energizer. The joule rating is usually printed on the packaging and on the energizer casing and can be shown as *Stored Energy* or *Output Energy*. Stored energy is a higher figure than output energy because some energy is lost in the form of heat when an energizer discharges. Always ensure that one is comparing like with like when evaluating energizers. i.e. *stored with stored* or *output with output*.

HOW FAR CAN AN ENERGIZER POWER?

The distance an energizer can power is a difficult question to answer conclusively as there are many variables which will affect it. A simple rule of thumb, used by many manufacturers, is 1 joule will power 1km of fence line wired in parallel or 1km of single strand. While this joule rating gives one a yardstick to compare energizer outputs, it can be very misleading resulting in wildly exaggerated claims as to the distances an energizer is capable of powering.

The distance an energizer can power is affected by many factors such as: type of wire used (stainless steel, galvanized, aluminum, or braided – which all have different levels of resistance); competition from vegetation; quality of the earthing system; quality of the materials used in the construction of the fence (insulators, joins and line clamps, cabling); mineral and moisture content of the soil; and lastly the general standard of construction. So, when erecting a game fence, we strongly recommend using a contractor who has a COC (*Certificate of Competence* issued by the Department of Labour).

On a game fence, one seldom installs an energizer with a rating of less than 6 joules, unless it is for specific problem animal control (i.e., duiker eating rose bushes, porcupine eating flower bulbs, birds nesting in rooves,) or for small bomas and lodges. Also, we recommend that one situates the energizer at the center of a fence line powering both sides. This reduces the load and enables one to achieve longer distances. It is generally safe to power fences up to 10kms with one energizer. Longer distances can and are being achieved but fault finding, and having too long a portion of the fence down in the event of a dead short, can be a problem.

 For more information on how to choose an energizer visit <http://www.stafix.co.za/howto1.html>

ENERGIZER OPTIONS

JVA MAINS/BATTERY HIGH POWER LCD ENERGIZERS

The NEW JVA High Power LCD (Liquid Crystel Display Screen) IP Energizers® are available in various models. The MB “XXL” is available in 32 and 24 Joules outputs and in one- and two-zone fence models. The MB “XL” Energizers are available in 16, 12 and 8 Joule outputs. The JVA IP Energizers® can be controlled from anywhere in the world using your mobile phone App.

All the units are ready to go out the box and can be paired to the JVA remote for added “from the fence” arming and disarming. Factory default settings can be changed through the use of the Virtual Keypad programming ability from a smart phone. All units can communicate through Wi-Fi to the JVA Cloud Router. Cloud router allows multiple energizers and sites to be monitored and controlled from one platform from anywhere in the world.



JVA LCD ENERGIZER RANGE FEATURES:

- Mains powered 110V/240V or
- Battery powered 12V/25V
- High Joule Power on demand
- JVA Remote Compatible
- IP Energizer Cloud Management
- Free Cloud Router APP - no monthly charges
- LCD showing KV, Battery Voltage, Amperage and Stored Energy in Joules
- Auto-Sync™ safety technology
- Solar capability
- Smooth Pulse Wave shape
- Overload indication (Audible and Visible)
- Lightning protection
- Reverse battery protection
- Self-resetting fuse
- Low battery indication
- Over discharge battery protection
- Battery life maximization
- Battery voltage measurement
- Ant and Moisture protection
- UV Stable enclosure



Virtual Keypad Programming via Smart Device when in proximity to the MB LCD Energizer



	MB 25	MB 25	MB 32	MB 32
	SINGLE	DUAL	SINGLE	DUAL
Stored Joules	35J	2x17.5J	46J	2x23J
Energy Output	24J	2x12J	32J	2x16J
Power Consumption at 13.5dc	2.5A	2.5A	3.6A	3.6A

JVA LCD RANGE



	MB8	MB12	MB16
Stored Joules	11J	16J	22J
Energy Output	8J	12J	16J
Power Consumption at 12.5Vdc	0.9 A	1.25 A	1.6 A

JVA MB MID-RANGE BATTERY AND MAINS LED ENERGIZERS

The MB1.5, MB3 and MB4.5 Electric Fence Energizers deliver between 1.5 and 4.5 Joules output energy per pulse. Their innovative design means you can have versatile portable power from a 12V battery when needed, or run it from 240Vac mains electricity where that is available. Optional JVA Solar Kits and external batteries are available.



	MB1.5	MB3	MB4.5
Stored Joules	2J	4J	6J
Energy Output	1.5J	3J	4.5J
Power Consumption at 12.5Vdc	0.15A	0.3A	0.5A

JVA LCD SOLAR ENERGIZERS

JVA offers a range of Solar Powered, Electric Fence Energizers which are ready to operate straight out of the box! A reliable built-in rechargeable battery and integrated solar panel means JVA Solar Energizers are totally portable, with no need for extra batteries and hardware. Just slide the energizer onto a support post, attach to the fence and switch it on.

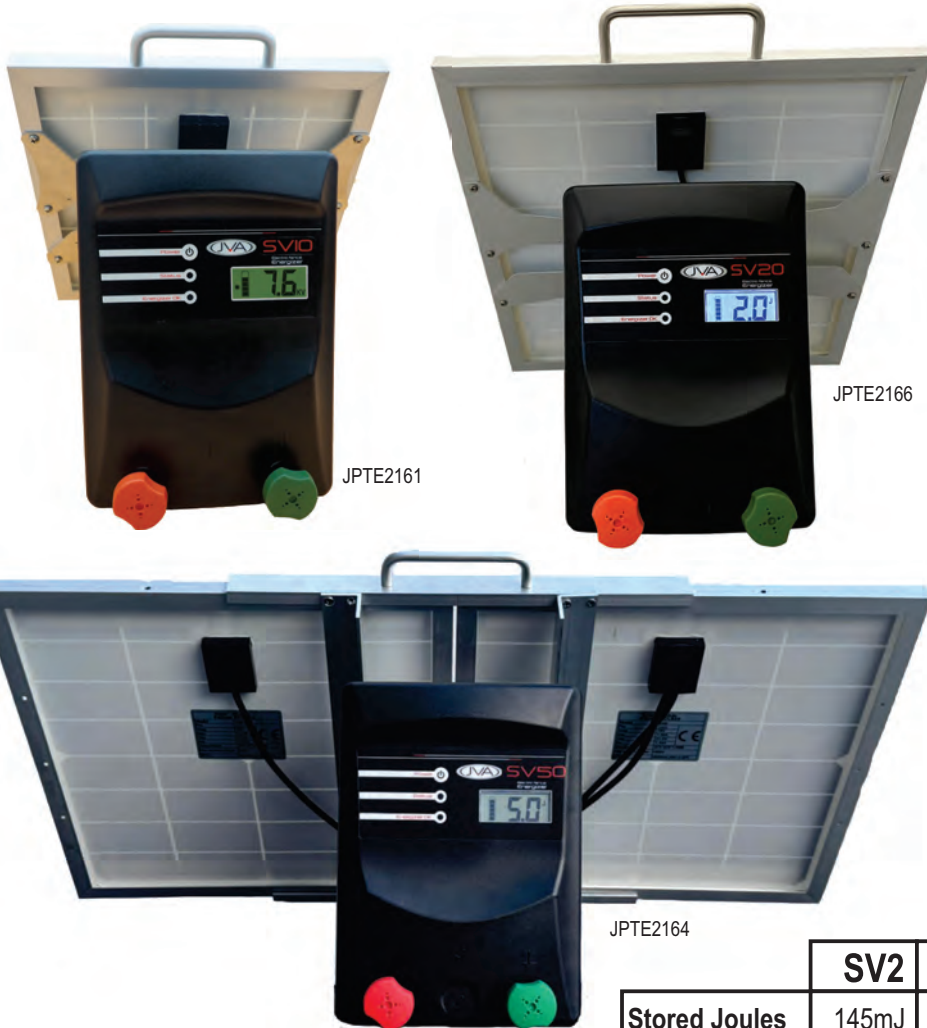
LCD Display



- Larger screen display
- Battery voltage
- Joules output
- Voltage on fence



JMHM030



JVA SOLAR ENERGIZER FEATURES:

- Quality crystalline solar panel and internal battery
- Front panel On/Off switch and LED pulse indicator
- Low Battery indication
- Large easy to use fence terminals
- Easy mounting on top of a Y-standard or U-bolt to a pole
- Sealed for ant and moisture protection
- On the SV5 up to the SV50 a LCD shows fence voltage, stored energy and battery voltage
- Auto-Sync technology for safer fences
- Internal lithium battery included.

	SV2	SV5	SV10	SV20	SV30	SV50
Stored Joules	145mJ	650mJ	1.1J	2.9J	4.2J	6J
Energy Output	120mJ	500mJ	0.8J	2.4J	3.3J	5.2J



THE JVA JUMBO RANGE OF ENERGIZERS (JVA JMB32-ZM1, JVA JMB32-ZM2, AND JVA ZMB32-ZM50)

 For more information on the full Jumbo Range visit our website or download our JVA Jumbo brochure at the link below <http://www.stafix.co.za/jvajumbo.html>

The JVA JMB 32 series is the most powerful and feature-rich energizer range JVA has manufactured to date. Designed in conjunction with some of South Africa's leading wildlife electric fence installers and game reserve management teams, the JUMBO series is proving highly effective in the fight against poaching.

The JMB series introduces the JVA virtual keypad, which enables one to monitor, control and program the energizers from one's Wi-Fi enabled smart device – phone, tablet or laptop. By incorporating Power Monitoring and JVA's patented Distant Fault Detection (DFT) technology the **JVA JMB32-ZM1** single zone monitored version, and **JVA JMB 32-ZM2** two zone monitored version, can be configured to monitor long fence lines without the need to create loops or return wires back to the energizer.

The **JVA JMB32-50** can divide a single fence into or up to 50 sectors.

The **JVA JUMBO** range also incorporates a world first, the EE Mode (Entrapment Escape Mode) whereby this animal friendly energizer will switch off for a pre-determined time span to enable a trapped animal to disentangle and escape.



LARGE SOLAR POWERED INSTALLATIONS

Game reserves are often located in remote areas where mains power is not available. So solar energy plays an important role in the provision of power for electric fence energizers. All JVA battery energizers can be solar powered via batteries but care must always be taken not to under specify panels sizes and battery requirements. Under-specified panel will lead to battery deterioration and expensive replacement costs.

 For more information on solar power visit our website at <https://jvasecurity.com/products/svrage.html>



All Stafix branches stock a range of solar panels, shock boxes and batteries.



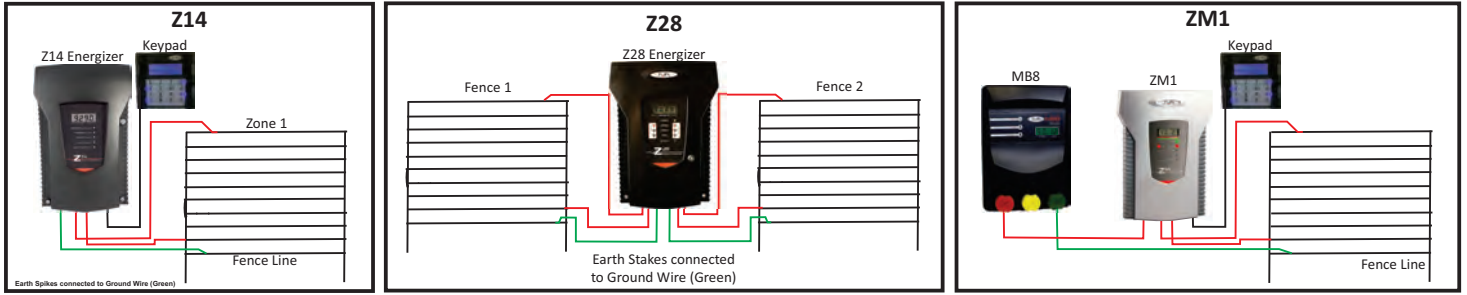
Solar panels mounted on a pole. The pole has reinforcing rods down its center to make cutting difficult.

Theft of solar panels and batteries is always a problem. Stafix branches stock a variety of shock boxes.

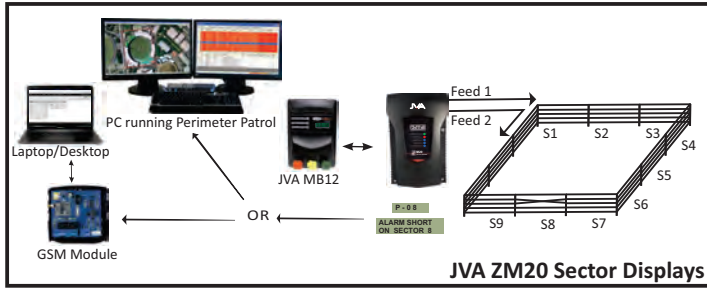
JVA ELECTRIC FENCE MONITORING SYSTEMS



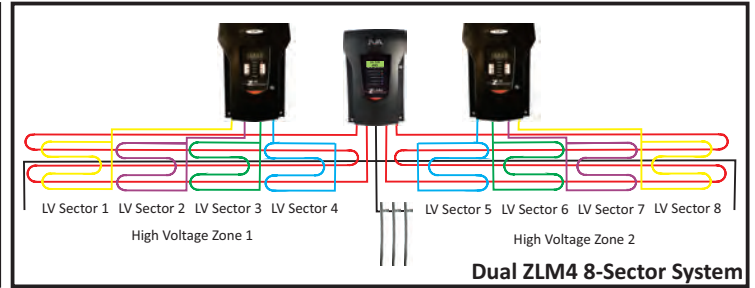
For more information on monitoring solutions visit our website at <https://jvasecurity.com/solutions/monitoringsolutions.html>



Basic High Voltage Stand-Along Monitoring Options



Current Monitoring



Low Voltage Monitoring

Monitored wildlife electric fences, besides controlling game, can do something no conventional game fence can do, namely keep one informed 24/7 of the condition of the fence line. JVA manufacture a wide range of monitored electric fence energizers as well as stand-alone monitors that can be linked to any standard energizer. The monitoring systems range from systems built into energizers (**JVA Z11, Z13, ZM14, ZM18, ZM114, ZM25, ZM28** and the **JVA JMB Jumbo Range**) to the stand-alone, simple, **JVA BM1** live-wire monitor or the more sophisticated **JVA ZM1, ZM20** and **ZM50** models capable of multi-sector monitoring.

Other more specific security fence monitoring devices, such as the **JVA VM2**, the **Vibration Detector**, the **JVA ZLM4 Low Voltage Monitor** and the **JVA Tamper Switch** are also available.



Energizers With Built In Monitors



Stand-Along Monitors



Perimeter Patrol



For more information on perimeter patrol solutions visit our website at <https://jvasecurity.com/products/jvapp.html>

ACCESSORIES

Good fences make good neighbours; quality materials make good fences.



N679

Plastic Jumbo Strain
(UV stabilized plastic)



N681

GFT Strain
(Glass fibre, DMC fire resistant)



N676

Porcelain Bullnose Strain
(Fire-proof)



N687

Porcelain Bobbin
(Fire-proof)



N521

GFT Buzz Bar
(UV stabilized plastic)



N770P

Plastic Combi
(Hot-dipped galvanized or 304 stainless steel)



N771

GFT Combi
(Hot-dipped galvanized or 304 stainless steel)



N771P

Porcelain Combi
(Hot-dipped galvanized or 304 stainless steel)



N760

Atlas
(Hot-dipped galvanized)



N673

Nail-On
(UV stabilized plastic)



N686

N685

Large and Small GFT Bobbin
(Glass fibre, DMC Fire resistant)



N683A

Gate Strain and Combi Bobbin
(UV stabilized plastic)



Dual Lightning Diverter



V-Type Lightning Diverter



N201
N202
N203

Single Offset
Available in:
225mm – short
350mm – medium
450mm – long



N210
N211

Double Offset
Available in:
225mm – short
350mm – long



N215
N217
N212

Triple Offset
Available in:
240mm – short
380mm – long
150mm/240mm – angled



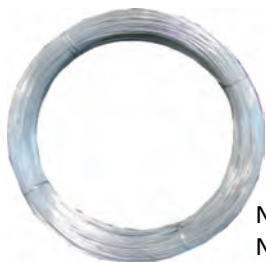
E103-1.2M

Reinforced Bar with Clamp
120cm/150cm
Hot-Dipped galvanized



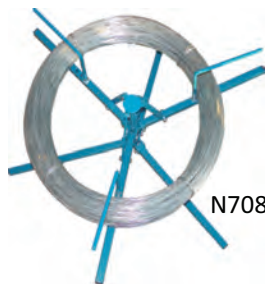
E101

Angle Iron with Clamp
120cm/150cm
Hot-Dipped galvanized



N737
N738

High Strain Steel Wire
Full range available in light or double galvanized
2.24mm 50kg 1650m
2.00mm 50kg 2000m



N708

Spinning Jenny
For use HSS Wire



N741

Standard Mech Galv



N742

U-Bolt Mech Galv



N740

Standard Hot-Dipped



N730H

HT Cable – Hard
For Free-Standing Applications
Available in 100m, 200m and 1000m



N701

Heavy Duty Free-Standing Warning Sign
UV stabilized with double clips

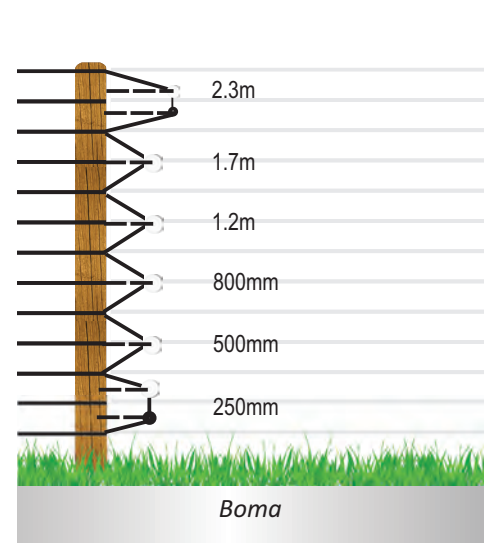
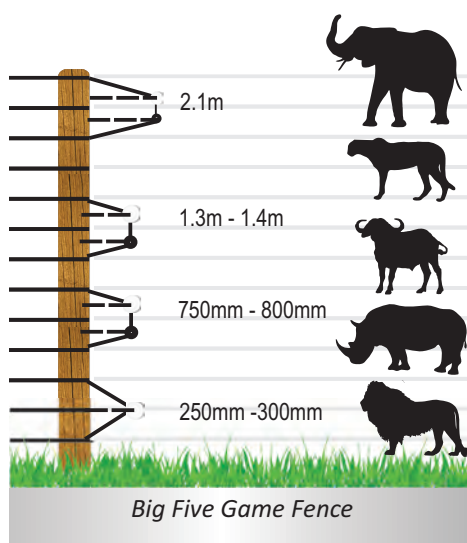
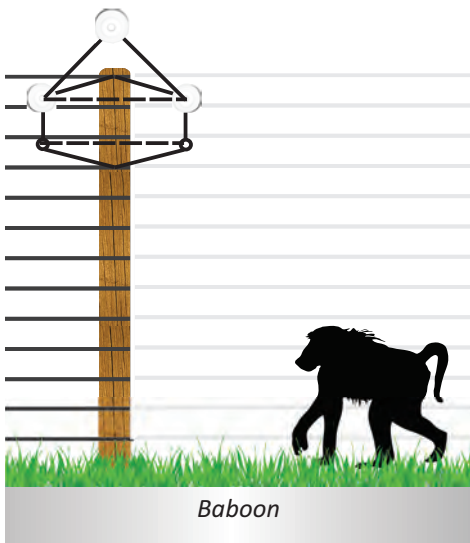
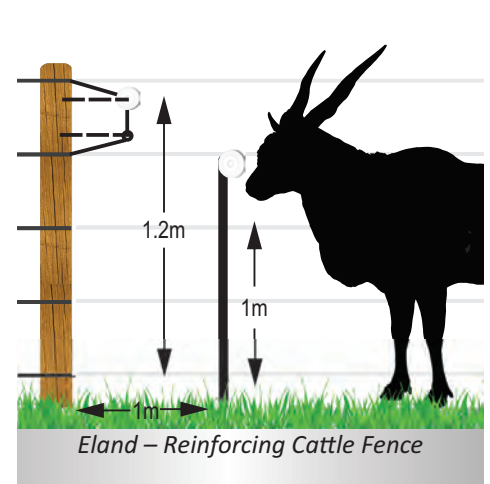
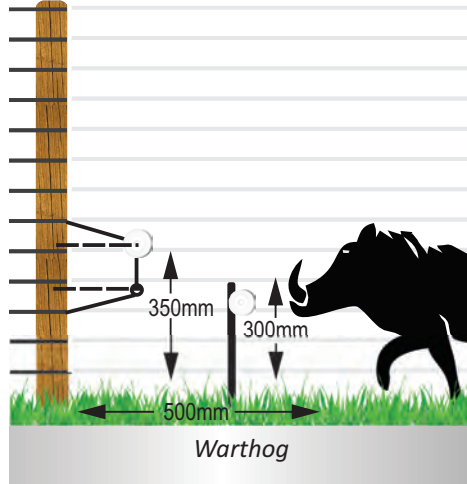
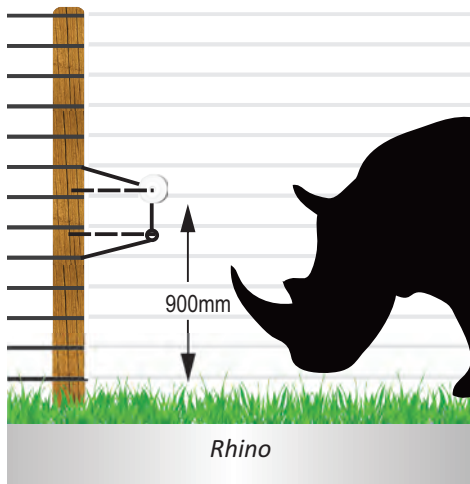
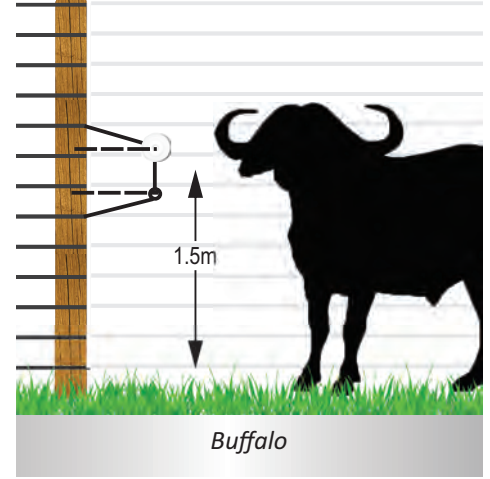
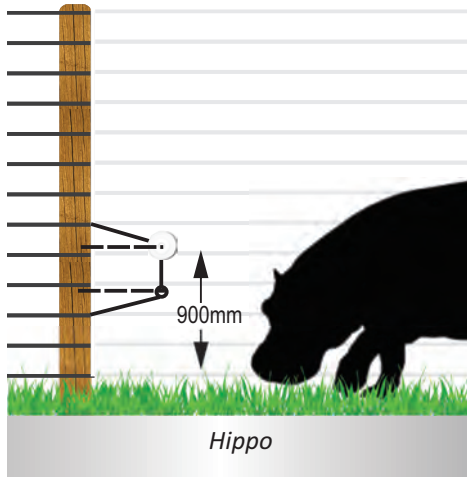
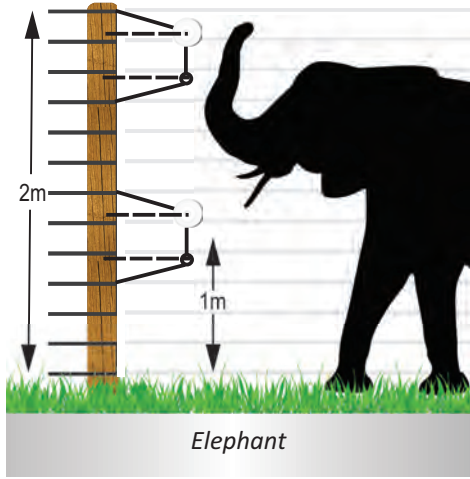


For further information on fault finding go to <https://jvasecurity.com/solutions/wildlifesolutions.html>

SOME FENCE DESIGNS FOR WILDLIFE CONTROL

WILDLIFE FENCE DESIGNS

When designing an electric fence for wildlife control, consider what the fight or flight reaction of the animal one is controlling will be when it makes contact with an electric fence. For instance *fight* would require a sturdier fence. Also consider their natural response to fences in general, i.e. are they burrowers (porcupine, warthog, wild pig etc.) blunderers (hippo, buffalo, etc.) jumpers (impala, kudu, eland etc.) or climbers (monkeys, baboons, leopards, etc.) As a general rule of thumb a live wire should be at nose or chest height to the animal you wish to control.



EXAMPLES OF ELECTRIC FENCES FOR WILDLIFE CONTROL



Game fence with offsets and trip wire



JVAJ MB32 EE Mode saving Pangolins



Buffalo Fence



Rhino Security Fence
Ziwa Rhino Sanctuary/Uganda



Elephant Security Fence



Lion Enclosure



Wild Pig Fence



Solar installation with wireless link to base camp



Pest Control



<https://www.stafix.co.za/gamepictures.html>



INTRODUCING WILDLIFE TO ELECTRIC FENCES

**KEEP THESE HEAVIES WHERE THEY BELONG,
ON YOUR PROPERTY,
OFF YOUR NEIGHBOURS',
ON OUR PLANET**



All animals need to be trained to respect electric fencing. So it is important that an animal receives a good shock the first time it makes contact with the electric fence. Do not rush them or cramp them into too small a space. They must be given time and space to learn that their new boundaries are hostile.

The following are some tried and tested methods of introducing wildlife to electric fencing:

POWER UP THE FENCE LINE AS CONSTRUCTION PROCEEDS

Do this immediately a section of fence line is complete. (Use a portable energizer.)

- This will ensure that inquisitive animals get a good shock the first time they make contact with the new fence and hence will quickly learn to respect it.
- It will reduce the incidence of damage to the fence line by animals, while unelectrified.
- It enables one to check for faults as one proceeds.

PAD WIPE THE WIRES WITH WATERED DOWN MOLASSES

As a general rule of thumb, live wires should be at nose height to the animal one is controlling. Molasses, or even milk powder, will encourage the game to sniff the fence and learn that their perimeters are hostile.

ATTACH ALUMINUM STRIPS OR METAL SPINNERS TO THE FENCE TO ATTRACT THE ANIMALS TO INVESTIGATE

INSTALL LIVE LITES ON THE FENCE LINE

These will improve night vision of the fence and will prevent nocturnal feeders such as hippo from blundering into the fence.

MAINTAIN POWER ON THE FENCE LINE AT ALL TIMES

Installing a monitoring system is strongly recommended. Unlike with domestic animals, on game reserves the fences are subject to pressure from a variety of species, changing populations of the same species and a variety of sizes and sexes. So it is essential that they learn and remember that their perimeters are hostile.

ELECTRIFY TRANS LOCATION BOMAS

Offset brackets attached to the interior of a boma are ideal for introducing and teaching animals to respect electric fencing. However, beware of confining too many animals in too small a space. They need space to be able to back off when shocked.

KEEP FENCE LINES CLEAN AND WELL CLEARED

This will not only reduce voltage loss but will prevent animals from blundering into the fences. A weedicide may be used under the fence lines but beware of causing erosion in hilly areas.

CONSIDER THE SEASON

The season can influence an animal's response to an electric fence. During the dry winter months one is not only faced with poor soil conductivity but animals are often better insulated with their thicker winter coats. Ideally, if possible, introduce animals to electric fencing after the spring rains.



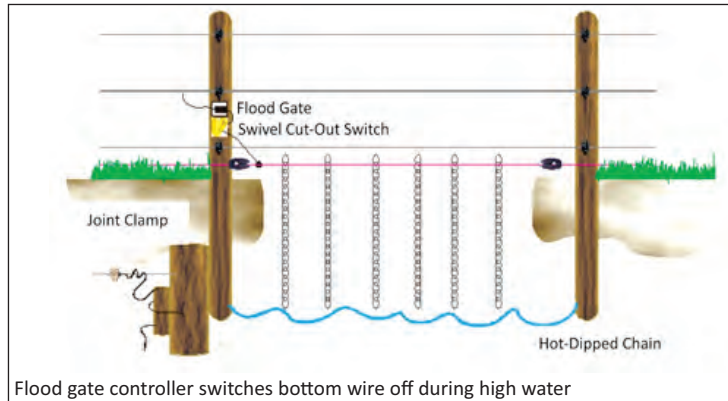
For further information on Introducing wildlife to electric fencing visit our website at <http://www.stafix.co.za/wildlife.html>

ELECTRIFIED GATEWAYS AND RIVER CROSSINGS

Electricity and water do not mix, so rivers and waterways pose a particular challenge for wildlife electric fencing projects. Gateways, if not protected, can become breakout points or rubbing posts, resulting in damage to the gates. These problems can be overcome by installing (A) floodgates, (B) floating fences or (C) electrified motor grids.



For further information on introducing wildlife to electric fencing visit our website at <http://www.stafix.co.za/crossings.html>



Flood gate controller switches bottom wire off during high water

A. Flood Gate for rivers, dongas, and waterways



B. Floating fence for slow rising waters/dams



C. Electrified Motor Grid



D. Low Profile Game Fence which gives an uninterrupted view around lodges

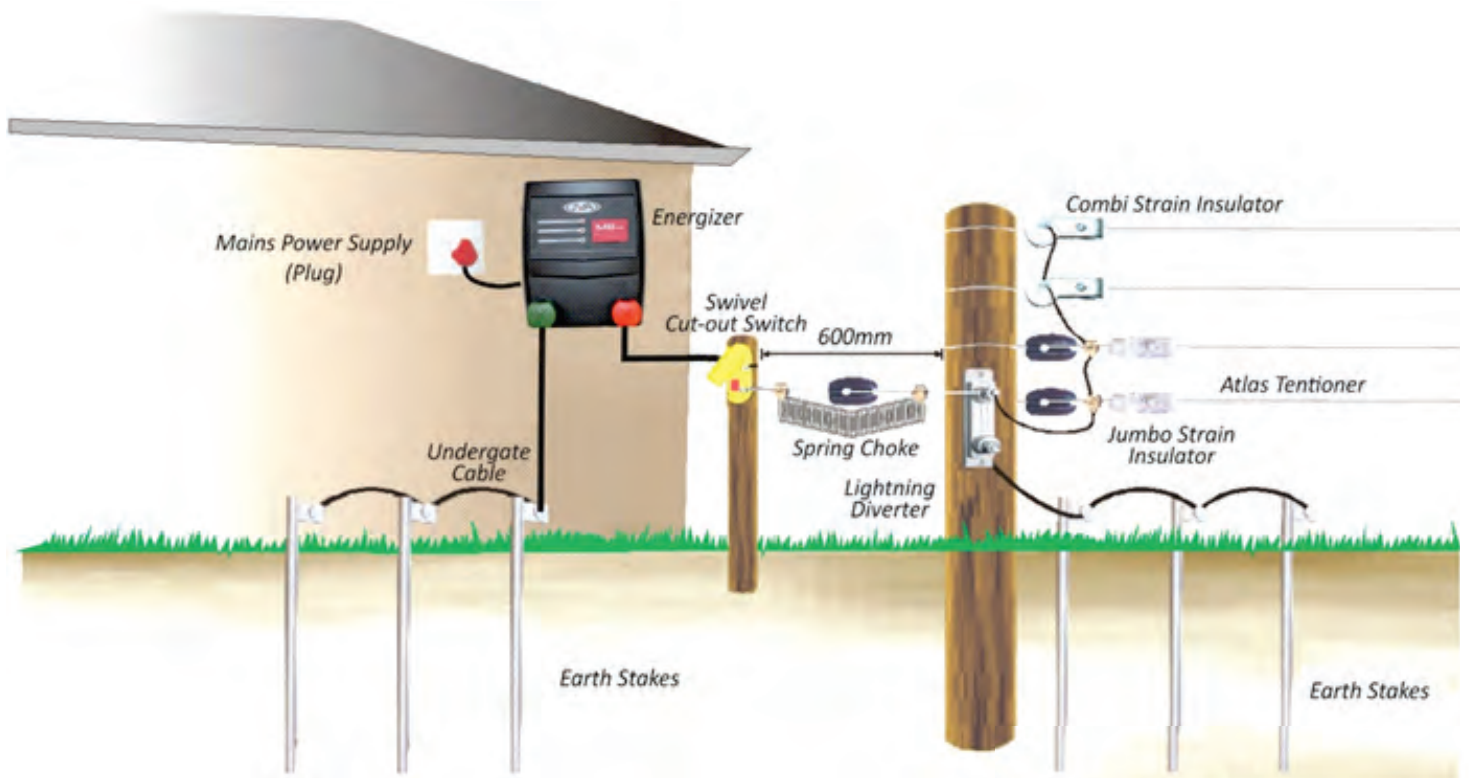
GOLDEN RULES OF ELECTRIC FENCING FOR WILDLIFE CONTROL

- Understand and apply the basic principles of electric fencing.
- Plan the layout with the future in mind.
- Use only high powered energizers.
- Pay particular attention to earthing.
- Make sure that the fence has power on it at all times.
- Install fence monitors and react promptly if there is a problem.
- Use only hot-dipped galvanized metal components.
- Make sure all joints are securely clamped. Use line clamps.
- In areas subject to veld fires, use fireproof insulators.
- Install cut-out switches at strategic locations.
- Install lightning diverters.
- Fire up the fence line as construction progresses.
- Do not confine too many animals in too small a space.
- Do not rush animals at a newly constructed electric fence.
- Have a fence maintenance program and stick to it.
- If using a contractor, make sure he has a COC.
- Be aware of the laws of electric fencing. (SANS 10222-3)
- Use only the best materials available. "Goedkoop koop is duur koop."

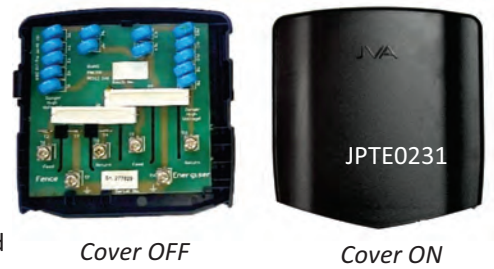


Offset brackets play a major role in wildlife fencing

JVA LIGHTNING PROTECTION



Lightning is definitely electric fencing's number one enemy. Lightning is one of the most powerful forces in nature and the installation of lightning arrestors along a lengthy game fence is essential. JVA produce a range of lightning diverters which, while not infallible, certainly do help in protecting one's energizers from indirect induced strikes. On a monitored electric fence, diverters need to be installed on both the feed-out and return wires of the fence line as lightning could return along either wire.



FAULT FINDING TIPS

An essential tool for fault finding is the JVA Directional Voltmeter. Cut-out switches along the fence line also greatly facilitate fault finding.

1. Check the voltage on the fence line. If unacceptable proceed to 2.
2. Check the power supplies – batteries, Eskom supply, plug point.
3. Disconnect the energizer from the fence and check the energizer.
4. If the energizer is not faulty, check the earthing system.
5. Check the lightning diverters. (They may have blown.)
6. Check the fence lead-out wires.
7. Now check the fence line itself. (Volt meter and cut-out switches come into play.)
8. Switch off the first cut-out switch and check the voltage.
9. If Okay, switch back on and proceed to the next switch
10. Once the section where the fault has occurred has been located do the following:
11. Check for broken wires (dead short.)
12. Check for heavy competition from vegetation. (reduced voltage).
13. Check for broken or cracked insulator/s (dead short or reduced voltage).
14. Check for loose or disconnected joints and line clamps.
15. Check that there are no fallen trees on the fence (dead short).
16. Check that no cut-out switches have been tampered with.
17. Check on either side of gateways (under-gate cable may be damaged).



Lockable Cut-Out Switch



Heavy Duty Cut-Out Switch



A301
JVA Directional
Volt Meter

THE LAW AND ELECTRIC FENCING

Ignorance of the law is no excuse and can lead to very expensive litigation, especially when dealing with overseas tourists or disgruntled neighbours. There are laws promulgated governing the applications of electric fences and electrified wildlife fencing is no exception.

The Act and Standards pertaining to wildlife electric fencing are:

- Occupational Health and Safety Act 1993 (Section 12)
- South African National Standard: SANS 60335-3-76:2006
- South African National Standard: SANS 10222-3-2016 (Edition5)



**Note: Golden Rules on page 11 and www.jvasecurity.co.za
<https://jvasecurity.com/manuals/electricfencinglaw.html>**



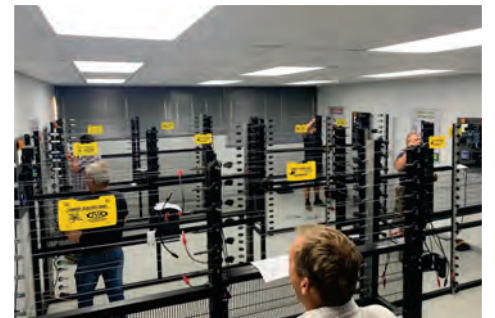
Ignorance of the Law is No Excuse

ELECTRIC FENCE ON SITE CONSULTANCY AND IN-HOUSE TRAINING

In addition to having trained sales personnel and in-house service technicians at all our distribution outlets, JVA also has fully equipped training facilities with trained facilitators where regular training courses, ranging from a basic introductory course on electric fencing to installation techniques, legal requirements and advanced technical training on our wide range of products is offered. We also run in-house customized training courses for specialized groups at locations such as venues serving security associations, farmer's security forums, schools, neighbourhood watch groups and game reserves. Ndlovu Fencing's and JVA's close association with their vast range of international trading partners enables these companies to keep abreast with the latest international trends, developments and requirements.



Ndlovu Fencing offers a comprehensive SAQA registered course and examination to qualify as an installer registered to issue a *Certificate of Compliance*. Ndlovu Fencing (Pty) Ltd, JVA's African distributors, is a leading role player in the setting up of the current South African Electric Fencing Standards and Regulations and Ndlovu's management are members of associations such as SASA, SABS Standards Committee, the Electric Fence and Components Manufacturer's Association, ESDA and the South African Game Fencing Association.



For more information on any of the training courses we have available please visit our website at <http://www.stafix.co.za/ndlovucollege.html>



WILDLIFE ELECTRIC FENCE MATERIAL COSTING SHEET

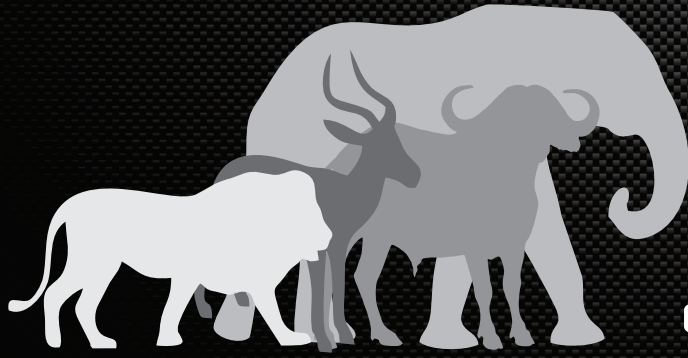
Animals to be controlled _____

Length of fence _____ Number of gates _____ Number of River Crossings _____

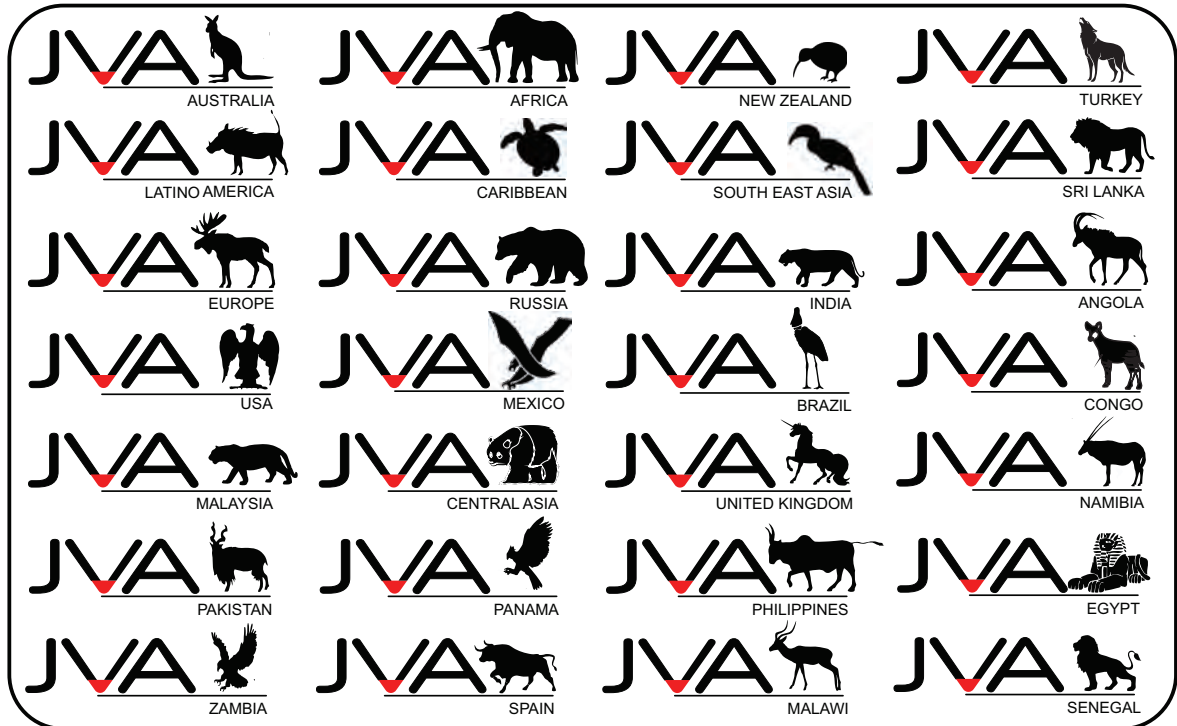
Design chosen _____ Power source _____ Monitored: Yes: ___ No: ___

Quantity	Item Code	Description	Unit Price	Net Amount	Vat%
		Electronics			
		Energizer			
		Solar Panel			
		Support pole for panel			
		Batteries			
		Shock box			
		Earth Stakes			
		Volt Meter (Standard / Directional)			
		Monitoring Equipment			
		Accessories			
		Straining posts			
		Stays			
		Intermediate posts			
		Strain insulators			
		Intermediate insulators			
		Combi strainers			
		Atlas strainers			
		Offset Brackets			
		Single Short			
		Single Long			
		Double Short			
		Double Long			
		Tripple Short			
		Tripple Long			
		Undergate-cable			
		Line clamps			
		Cut-Out switches			
		Concrete mix			
		Warning signs			
		Gate ways			
		River crossing			
		Miscellaneous			
VAT 15%	VAT AMOUNT		SUB TOTAL		
			VAT		
			TOTAL		





ELECTRIC FENCE SYSTEMS



JVA electronic products are proudly designed and manufactured in Australia



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Although the information presented in this product catalogue is believed to be accurate and reliable, no responsibility for inaccuracies can be assumed by Ndlovu Fencing. Performance data is typical only and variations owing to component manufacturing tolerances are normal.

www.jvasecurity.co.za