



Strainrite[®]
FENCING SYSTEMS

MB32 ENERGIZER MANUAL

ELECTRIC FENCE ENERGIZER

WIFI REMOTE APP ENABLED

POWERFUL YET SAFE*

PLUG N PLAY - EASY SETUP



1 CONTENTS

1	Introduction	4
2	Important Notes	6
2.1	Electric Fences	6
2.2	Energizers	6
2.3	Power Supply Options	7
2.4	Mounting	7
2.5	Important Notes	7
3	MB32 Features	8
3.1	Features	8
3.2	Specifications	10
3.3	Virtual Keypad	11
3.4	Fence Line Communications	15
4	Installation.....	18
4.1	Installation Steps	18
4.2	High Voltage Fence Terminals	19
5	Operation.....	20
5.1	Control Arbitration	20
5.2	Electric Fences	20
5.3	Benefits Of Electric Fences	21
5.4	Ground Return Setup	22
5.5	Fence Return Setup	23
5.6	Earthing Your Energizer	24
5.7	The Importance of Insulators	24
5.8	Maintenance	24
5.9	Low Voltage Terminals	25
5.10	Low Voltage Wiring Diagrammes	25
6	Configuration Options in Detail.....	28
6.1	Group ID	28
6.2	High Power Mode Power Level	28
6.3	Battery Charger Float Voltage	28

6.4	Battery Alarm Voltage	29
6.5	Pulse Time.	29
6.6	Fence Voltage Alarm Level	29
6.7	Current Alarm Level.	30
6.8	Ground Voltage Alarm Level	30
6.9	Fence Alarm Delay (Pulse Count)	31
6.10	DFD.	31
6.11	Siren On Time	32
6.12	Siren Off Time	32
6.13	Siren Cycles	33
6.14	Auto Rearm Time	33
7	Device Troubleshooting	34
7.1	Status and Error LEDs.	34
7.2	Arming Switch	35
7.3	Moisture and Ants.	36
7.4	Lightning	36
7.5	Flat Batteries	36
8	Common Fence Problems	37
8.1	Testing the 'Earth'	37
8.2	Testing the Fence, Finding Shorts	37
9	Australian Standards Requirements - AS60335.2.76	38
9.1	Definitions	38
9.2	General requirements for electric fences	38
9.3	Particular requirements for electric animal fences in Australia.	41
9.4	Prohibited Mounting	41
10	Warranty.	42
10.1	For assistance	42
10.2	Service or Repairs	42

1 INTRODUCTION

Congratulations on your choice of an MB32 energizer. In choosing to purchase a Strainrite product you have opted for the highest quality in electric fencing. Please read this manual entirely before installing or operating your new energizer.

The MB32 offers a three-year warranty against faulty components and workmanship but excludes environmental extremes (i.e. lightning, flood damage, etc.) or malicious damage to the unit or faulty application. Consumable components (i.e. batteries) are also not covered by the warranty agreement. To ensure your eligibility for the warranty program offered with this device, please retain your proof of purchase. For a warranty description, please see the final page of the manual.



High Voltages exist inside the electric fence energizer and on the fence terminals. The high voltage inside the energizer may take a long time to discharge. Wait at least 10 minutes after turning off before opening the case. Before working on the high voltage wiring of an electric fence, it is recommended that the energizer is disarmed, and a short circuit is placed from the fence live wires to earth. This is a sensible precaution against the energizer being armed by others, while you are working on the fence.

While the MB32 was specifically designed for game parks and exclusion fencing, it is also well suited to any large permanent electric fencing application. The MB32 produces a stunning 46J of stored energy.

A monitored electric fence reduces maintenance by reporting faults and allowing you to check the fence from wherever you are using the Internet.

The MB32 introduces the SR Virtual Keypad. This allows you to monitor, control and program the energizer from your Wi-Fi enabled smart device (Phone, Tablet or Laptop). The MB32 may also be controlled and monitored with a wired Keypad.

By incorporating Power Monitoring and our Patented Distant Fault Detection (DFD™) technology, the MB32 models can be configured to monitor long fences without the need to create loops or install a return wire to bring the end of fence voltage back to the energizer. This is also known as “Start of Fence” monitoring.

If you want to use traditional “End of Fence” monitoring these models also have an optional fence return terminal.

The MB32 also contains a ground (earth) monitor which can be configured to create an alert if the earth system is insufficient ^{Note}. It is also remote ready and can be controlled using a remote control.

The MB32 is designed to meet or exceed the requirements of IEC60335.2.76.

Note: Your MB32 energizer may have a wire link connecting the ground and ground-reference terminals together. This provides an improved earth connection, but will disable the ground monitoring feature.

2 IMPORTANT NOTES

2.1 ELECTRIC FENCES

1. Electric fences are not toys; do not let children play with them.
2. Electric fences should only be installed with regard to the relevant standards and work place health and safety requirements.
3. Electric fences should be signed. Warning signs that comply to IEC standards should be prominently displayed on electric fences at distances specified by the country in which they are installed.
4. Electric fences must have an 'earth'. An electric fence ground is one or more pieces of metal (eg. 1.8m Galvanized earth rods) driven into the earth to a depth of at least 1.2m. Three earthing rods are recommended for customers purchasing the MB32. Additional earth connections may be required at the energizer or along the fence in poor soil conditions.

2.2 ENERGIZERS

1. The energizer places a very short, safe, high voltage pulse on the fence live wires approximately once every second. Please be advised that there is always a risk associated with any device designed to impart an electric shock. Do not allow children or elderly persons to touch the energizer or fence live wires.
2. The maximum length of fence able to be energized depends on many factors, for example the earth resistance, number and spacing of wires on the fence, type/quality of insulators, resistance of wire, whether the wiring configuration is series or parallel etc. The amount of grass or shrubbery touching the wires also alters the performance. Fence circuit layout is very important. Another factor to consider is acceptable fence voltage, for some stock situations this is 3kV others require more or less. Therefore the rated mileage of fence that the energizer will power effectively is a guide only.
3. **DANGER!** The Energizer should never be operated with the cover removed as high voltages exist inside the enclosure while operating. High voltage may remain on some internal parts long after the unit has been switched off.

2.3 POWER SUPPLY OPTIONS

The MB32 electric fence energizer can be powered from a number of power sources.

- a. 12V external battery (not supplied)
- b. 12V external battery with solar panel (not supplied)
- c. Mains via 24V plug pack (supplied)

2.4 MOUNTING

- Always ensure adequate ventilation is given to the external 12V battery. Lead Acid batteries may emit explosive gases while charging!
- Always mount the power supply either indoors or undercover.

3 **MB32 FEATURES**

3.1 FEATURES

Virtual Keypad via your Wi-Fi enabled device (smart phone, laptop etc.)	✓
Distant Fault Detection (DFD™) technology	✓
High powered (up to 46 Joules stored)	✓
Mains or 12V Battery powered (mains via optional 24V plug pack)	✓
Lightning protection on all fence connections	✓
No mains inverter required to run on solar and battery	✓
Power on demand meaning it only uses the power it needs for the fence conditions	✓
Able to be controlled and/or monitored through Virtual Keypad using on board Wi-Fi	✓
Able to be controlled and/or monitored through Fence line Remote Control	✓
Inbuilt 1A backup battery charger	✓
ON/OFF switch	✓

- **Battery life maximization** works by slowing the frequency of high voltage pulses just before the battery dies to keep the energizer going for as long as possible without damaging the battery.
- **The over discharge battery protection** will stop the energizer when the battery is flat and flash the status LED twice each second. This stops too much charge being pulled from the battery and prevents permanent damage. The energizer will automatically restart once the battery voltage returns to a normal level.
- **The reverse battery protection** protects the energizer from damage in the event you are having a bad day and connect the external battery the wrong way around.
- The MB32 energizer **seals the electronics inside a durable UV Stable case** to protect from ants, moisture and dust to maximise reliability.
- **Overload indication** warns you if your fence is heavily loaded by flashing a warning LED and alerting you with a short audible beep.
- The MB32 utilizes the latest **digital micro controller** technology to extend battery life, provide useful feedback on the energizer status, and increase reliability and performance.
- The **audible alarm** will sound in the event of a serious error for 30 seconds and then shut down for 7 minutes before sounding again.
- The **Auto Recover** feature will attempt to recover the energizer from severe errors which causes the energizer to stop working. This automatic recovery process will occur at 7 minute intervals.
- Our patented **Auto-Sync™** technology to help keep your fences safe.
- **Power on demand** automatically increases the power to heavy fence loads.

To use with a solar panel, an external 12 volt sealed lead acid battery, solar panel and solar regulator are required (not supplied with this kit).

3.2 SPECIFICATIONS

Specifications						
Output Voltage ¹	Stored Energy	Power ²	12V drain ³	Minimum Solar Panel Size ⁴	Solar Battery ⁵	Peak Output
9.5kV	46J	24Vdc (Powerpack) 12Vdc (battery)	1.9A @ 24Vdc 3.5A @ 12Vdc	350W (6hrs Sun)	450Ah	32J

Key

- 1 No load, actual voltage on a short fence can be as high as 10kV.
- 2 The energizer can also be powered with 110v/240Vac by using the external power pack supplied with the energizer.
- 3 Current drain will vary with voltage.
- 4 Recommended solar panel sizes based on the number of sun hours/day a region receives. To find the minimum number of sun hours/day your region receives contact your local meteorological authorities.
- 5 The recommended battery size will allow the energizer to operate for up to 5 consecutive days of overcast weather.

Due to our policy of continual improvement specifications are subject to change without notice.

3.3 VIRTUAL KEYPAD

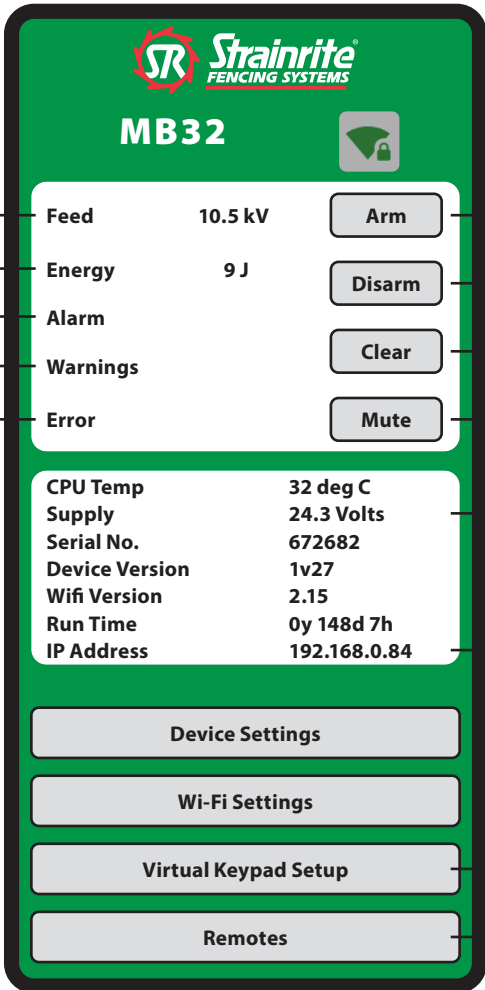
To connect to the VKP, scan for Wi-Fi networks within 15 meters of the MB32 energizer. Connect to the "IPE_xxxxxx" where "xxxxxx" is the serial number (found on the back of the device). For example "IPE_500123".

Hint: Some smartphones require the mobile data to be disabled to use this Wi-Fi network without an internet connection.

If you are not automatically redirected to the VKP, use a browser to go to <http://192.168.4.1>



Virtual Keypad (VKP) - Home Screen



The screenshot shows the home screen of the Strainrite MB32 Virtual Keypad. At the top, the Strainrite logo and model number 'MB32' are displayed. A Wi-Fi icon with a lock symbol is in the top right. The main interface is divided into several sections:

- Control Panel:** A white box containing status information and control buttons.

Feed	10.5 kV	Arm
Energy	9 J	Disarm
Alarm		Clear
Warnings		Mute
Error		
- System Information:** A white box showing device details:

CPU Temp	32 deg C
Supply	24.3 Volts
Serial No.	672682
Device Version	1v27
Wifi Version	2.15
Run Time	0y 148d 7h
IP Address	192.168.0.84
- Settings Menu:** Four buttons at the bottom: **Device Settings**, **Wi-Fi Settings**, **Virtual Keypad Setup**, and **Remotes**.

Callouts on the left side of the screen explain the status indicators:

- Feed:** Displays the fence voltage in kV
- Energy:** Displays the stored energy in joules
- Alarm:** Displays triggered alarms
- Warnings:** Displays warnings
- Error:** Displays hardware faults

Callouts on the right side of the screen explain the control buttons and system information:

- Arm:** Turn on the energizer
- Disarm:** Turn off the energizer
- Clear:** Clear alarms/warnings
- Mute:** Mute buzzer
- Supply:** Voltage of battery/ power source
- IP Address:** IPv4 network address (if configured)
- Virtual Keypad Setup:** VKP Security (optional)
- Remotes:** Configure FLC Remotes

This page is the main interface. It allows control and diagnosis of fence faults, this is available without any internet connection. This page is available within 15m of the unit (Wi-Fi range) or via the configured IPV4 address on an existing Wi-Fi network. (See page 6 for Wi-Fi setup)

Virtual Keypad (VKP) - Device Settings

Strainrite
FENCING SYSTEMS

Device Settings

Fence Voltage	8.0	kV
Max Joules	25	Joules
Pulse Time	1.4	Sec

The Alarm settings are for the Energizer and Cloud Router. To Configure the IPEC alarm settings, please use the App

Voltage Alarm	2.0	kV
Energy Alarm	0	J
Supply Alarm	11.5	Volts
Alarm Delay	15	Min
Alarm Delay	0	Sec

Gateway	IPEC
IPEC Password	
Front Button Enabled	<input checked="" type="checkbox"/>
AutoPair Remote	<input checked="" type="checkbox"/>

Save Settings

Main Menu

Default Settings

Target voltage for energizer output

Limit the energizer's maximum stored Joules

Time between fence pulses

CloudRouter and VKP homepage display only:

Trigger a 'Low voltage' alarm when the output falls below the set value

Trigger a 'High energy' alarm when the output energy rises above the set value

Trigger a 'Low battery' alarm when the input voltage drops below the set value

Alarms will trigger if still in fault for this period

Select cloud service to connect to

Create a password (IPEC only)

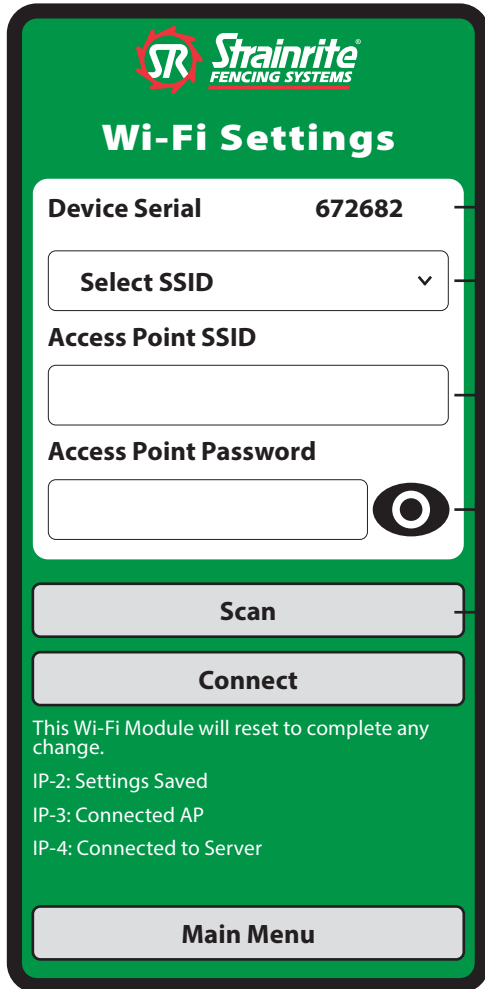
This tick box can be un-checked to disable arm/disarm by physical front button

This enables a 10 minute window for pairing FLC devices from first powering up the device.

The "Save Settings" button must be pushed when changes are made, otherwise they will be returned to previous settings when navigating back to Main Menu.

The alarm settings (Voltage Alarm, Energy Alarm, Supply Alarm) are for Cloud Router and for VKP homepage alarm display only. To set IPEC alarm thresholds, use the settings in the app.

Virtual Keypad (VKP) - Wi-Fi Settings



2.4GHz NETWORK ONLY.

This Wi-Fi module is only compatible with 2.4GHz networks.
 Hint: If you have a dual band Wi-Fi network, please disable 5GHz or create a 2.4GHz only separate network.

Displays the serial number allocated to the energizer

Drop down box for selecting the Wi-Fi Network

Selected Access point / Wi-Fi Network display name

Enter the password to your Wi-Fi Network

Scans for available Wi-Fi Networks

How to connect the device to a Wi-Fi network. This allows connection to a cloud service, or access to the VKP from that network.

1. Press the [scan] button for available Wi-Fi Networks
2. Select your network to join
3. Enter your Wi-Fi Password
4. Press the [Connect] button to connect the energizer to your Wi-Fi Network

3.4 FENCE LINE COMMUNICATIONS (FLC)

3.4.1 What is FLC?

FLC is a proprietary protocol designed and developed by Pakton Technologies. This protocol allows communication between enabled devices on the same electric fence system.

3.4.2 How does it work?

FLC transmits over the conductive fence wire from the node or handheld device back to the Energizer. The communication does not generate enough energy to shock the user or animal touching the fence while transmitting.

3.4.3 Remote Control

The Remote control and Fault Finder uses the FLC protocol to communicate directly with the energizer, this means being able to turn on and off the energizer from the fence line. No Internet connection is required, simply pair the remote control to the energizer using the Virtual Keypad and control the energizer through the fence line.

3.4.4 Is FLC secure?

One big feature of this system is the ability to pair multiple remote controls to the one energizer. With countless individual remote ID numbers, there is no possibility of somebody else controlling your energizer with an unpaired remote control.

ELECTRIC FENCE PRODUCT RANGE

Strainrite has everything you need to get your fence operational. from lead out and underground cable, insulators, insulated wire strainers and earth stakes. Visit www.strainrite.co.nz to see the full range or contact us page.



**2M
EARTH STAKES**



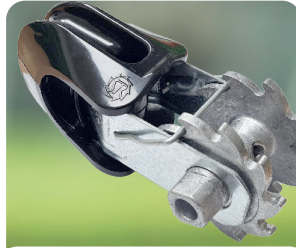
**LIGHTNING
DIVERTER**



**UNDERGROUND
CABLE**



**JOULE SHIELD
INSULATORS**



**DURASHIELD
WIRE STRAINERS**



**CUT OUT
SWITCHES**



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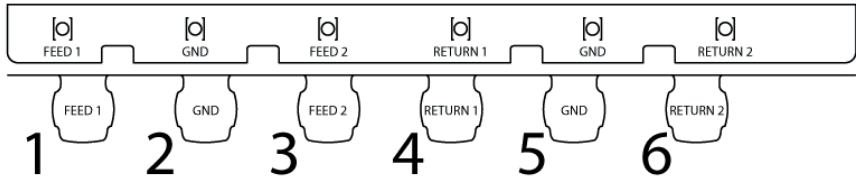
NOTES

4 INSTALLATION

4.1 INSTALLATION STEPS

1. Ensure that you have read through this manual first!
2. Design and build the fence. (Beyond the scope of this guide)
3. Decide where the MB32 energizer is to be mounted. If on an external wall it should be housed within an equipment box and not in direct sunlight.
4. Remove the 4 plastic bolts that tighten the lid of the enclosure
5. (Optional) Use the provided concrete screws to mount the enclosure to a wall. The mounting holes are below the 4 large plastic lid bolts.
6. Wire the low voltage cables (including mains and/or battery power) to the PCB terminals passing through the small cable glands.
7. Wire the fence and earth cables to the fence terminals passing through the large cable glands.
8. The **unused black glands** should be sealed with a short length of round cable, to prevent insects from making their way inside.
9. The Energizer is designed not to start when first powered up irrespective of the state of the Control Inputs.
10. Connect power to the energizer by connecting a battery, plugging the AC plug pack into the wall, or both.
11. Attach the Lid using the 4 plastic bolts.
12. Arm the energizer using the switch on the right side of the enclosure or by using the Virtual Keypad (refer to the Virtual Keypad section).
13. The Virtual Keypad or a connected Keypad will now show the fence voltage(s) and current(s).
14. Lastly, find and remove any faults on the fence.

4.2 HIGH VOLTAGE FENCE TERMINALS



Model	1	2	3	4	5	6
MB32	Fence	Ground	Fence N/C	Return 1 (optional)	Ground Return (optional)	Return 2 N/C

5 OPERATION

5.1 CONTROL ARBITRATION

The MB32 energizers may be armed and disarmed (controlled) using a variety of methods:

Inbuilt:

- The Virtual Keypad
- The Switch(es) on the side of the enclosure
- A fence line Remote Control
- Removing power

If the MB32 is configured with two different ways to control it, then the most recent method used will have control. For example, if the MB32 is armed via the Virtual Keypad and then disarmed at the side switch it will disarm.

5.2 ELECTRIC FENCES

Electric fence energizers work by discharging a short, safe, high voltage pulse onto the fence wires. The animal will not be harmed by a pulse, but it will remember to avoid contact with the energized fence in future.

The high voltage is discharged from the red positive fence terminal of the energizer and this is connected to the live wires, or fence tape, of the fence to make them “live” or “hot” wires. Live wires must be insulated (e.g. with insulators) from earth or any other conductive material touching earth (e.g. fence posts).

The green connection on the energizer is the earth (or ground) terminal. Electric fences need earthing to complete the circuit: When an animal touches the live wire of the fence a current will flow from the live wire, through the animal, back through the ground or earth return wires to the earth spike and back up to the energizer earth terminal.

On touching the earth terminal on the energizer or the earth spikes in the ground, no shock should be felt. If a shock is felt on either of the above, it is an indication that the earthing is insufficient. To overcome this problem, extra earth spikes need to be added to the system. The better the quality of the earthing system, the more effective and efficient the electric fence system will be.

You should not feel a shock 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 earth and the higher the moisture content in the soil the better. The larger the energizer and the longer the fence the more 'earth' is required.

In very dry conditions, i.e. sandy soil, it is recommended that a dedicated earth wire be added to the fence line which in turn should be connected to the energizer earth and the ground/earth spikes

For best results place the energizer in the middle of long lines of fence. A cartwheel pattern of farm fences with the energizer positioned centrally is more effective than a tree arrangement with the energizer at the base of the trunk with many branches.

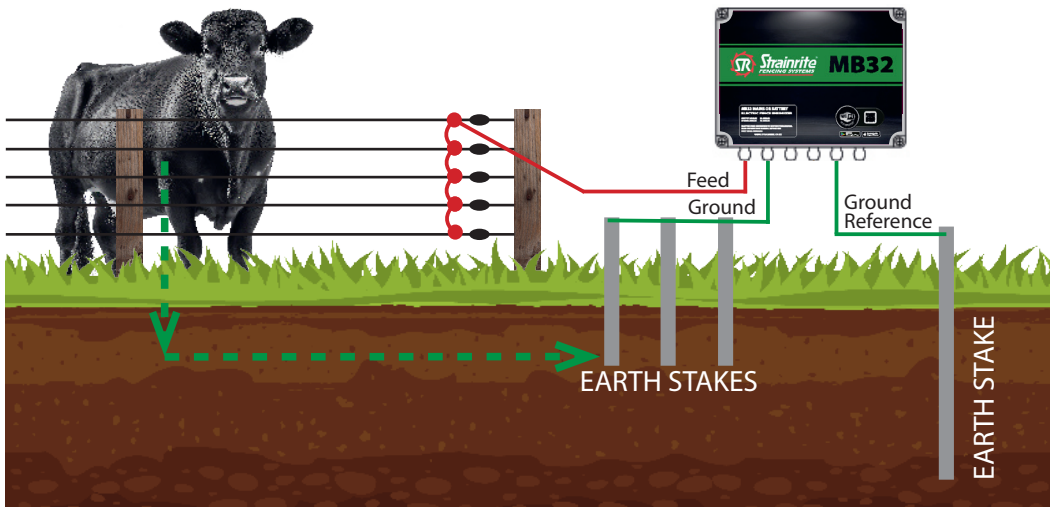
The fence and the earth voltages can be measured using an electric fence digital voltmeter or digital electric fence directional fault finder (the Electric Fence Fault Finder).

5.3 BENEFITS OF ELECTRIC FENCES

- An electric fence offers a psychological barrier as well as a physical barrier.
- The risk of injury to livestock is lower than with barbed wire fences.
- Electric fences cost less to install and maintain than conventional fencing. Users enjoy low maintenance costs because their stock stays off the fence.
- Their use is versatile -
 - they can be permanent or portable systems,
 - they can be arranged in variety of designs to suit needs
 - they are quick and easy to erect
- They improve pasture and grazing control.
- They can improve existing fence life due to less physical pressure.
- Easy to set up compared to a traditional fence.

5.4 EARTH RETURN SETUP

The Earth Return (also called Ground Return) configuration is the most common method for electric fences, particularly smaller fence applications like “strip grazing”, due to its lower cost and ease of setting up. The fence live wire(s) are electrified and rely on the dirt to complete the circuit back to the energizer Earth terminal when an animal touches the fence.

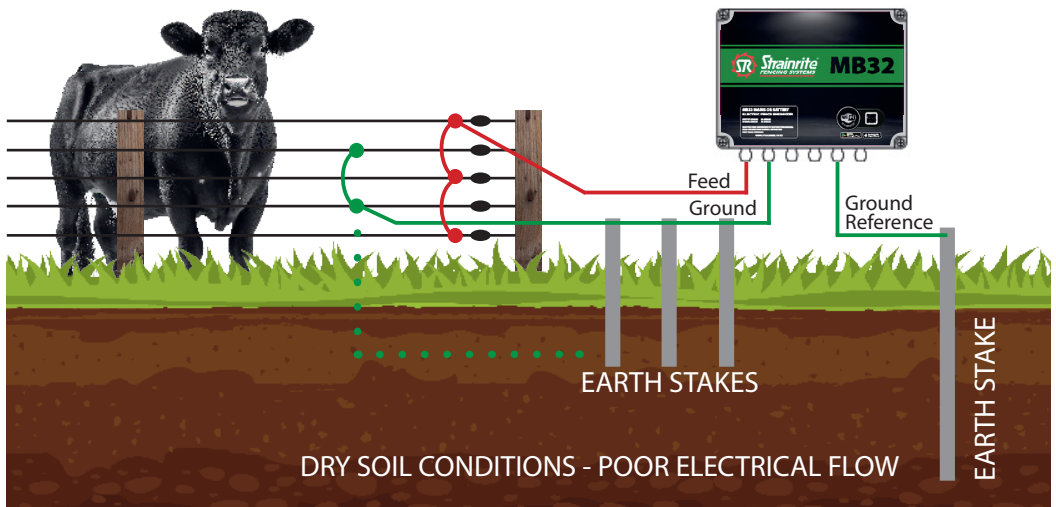


The electrical circuit is closed between the fence and the ground when the animal touches the fence, completing the electrical circuit back to the earth and providing a shock.

A good earthing system is critical to energizer performance.

5.5 FENCE RETURN SETUP

The Fence Return configuration for electric fences is used where the soil could be too dry to complete the circuit, or the animals are likely to try to force their way through between the fence wires. In this system earth wire(s) are also run along the fence with the live wire(s) to provide a low resistance path for the current to return to the energizer. In this system if the soil is moist enough it will also function as a return path for the current when the animal touches the live wire, but if the soil is not moist or has poor conductance, this system will keep your fence effective provided the animal touches both a live and the earth wire simultaneously.



The electrical circuit is closed when the animal nudges both the live wire (Red) and Earth Wire (Green), completing the energizer circuit and providing a shock.

5.6 EARTHING YOUR ENERGIZER

The best way to earth your energizer is using a 1 meter galvanized earth stakes. If the earth stake is too rusty it may not work properly. The best place to locate the earth stake is somewhere close to where the fence starts and that is kept damp like a garden bed, a water course, or the overflow from a rain water tank. Do not connect the earth of your energizer to a metal shed or the same earth your home electricity system uses. It is also advised not to use any metal water pipes as this could lead to someone receiving a shock from a tap. Semi-Permanent and Permanent Fences
Steel posts are the quickest and easiest way to set up a fence, but timber and fiberglass posts can also be used. Make sure that the wires are tight enough that there is no sagging. 2.5mm galvanized fence wire is recommended as poly tape or rope will degrade and break over time. Safety signs need to be fitted as per the requirements outlined in the “General requirements for electric fences” part of this manual.

5.7 THE IMPORTANCE OF INSULATORS

If the live wire is not well insulated the fence load will be much higher, this means for any given length of fence the voltage will be lower. Pieces of wood and garden hose are not good insulators. Use the ones made for the job and you will get a better result.

In a fence return system the earth wire(s) do not need to be insulated, in fact if you are using steel intermediates the more times the earth wire touches a metal post the better it is “earthed”.

UV stable poly insulators will last much longer than non-UV stable plastics. Plastic insulators are not as susceptible to fracture as ceramic insulators. However, ceramic insulators are better in grass fire prone areas as they do not melt.

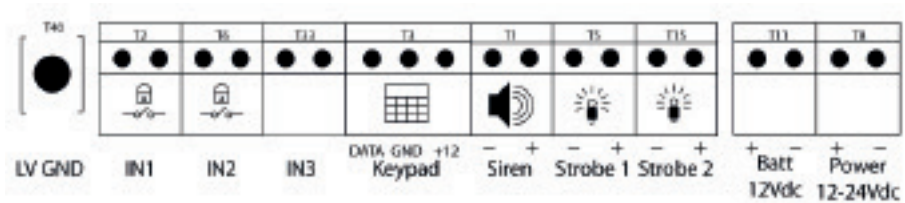
5.8 MAINTENANCE

On permanent fences maintaining the fence is important, especially during the warmer months when plant growth is at its highest and after any large weather events.

1. Check the fence voltage using an electric fence volt meter. The fault finder will also detect faults and direct you towards them.
2. Keep vegetation away from the fence. If it touches the fence it will reduce its performance. Along permanent fence lines you may wish to use a weed killer to deter any growth.
3. Check that nothing has fallen against the fence and that the wires are not broken or have been unclipped from insulators.

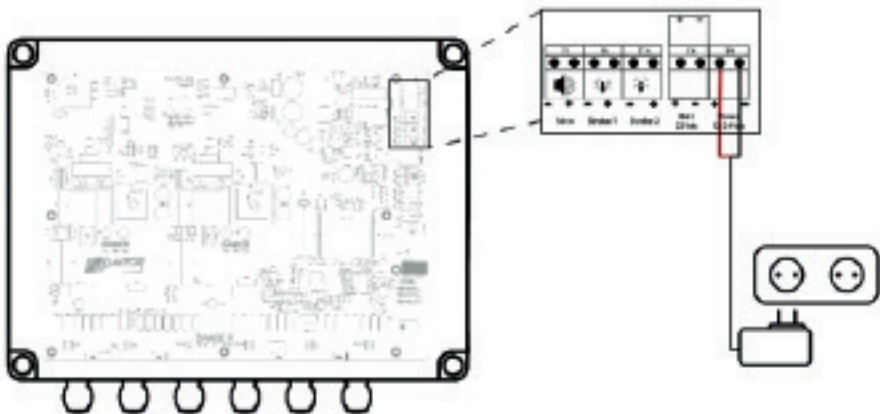
The energizer battery must be checked. You can view the battery voltage and state of charge via the Virtual Keypad.

5.9 LOW VOLTAGE TERMINALS

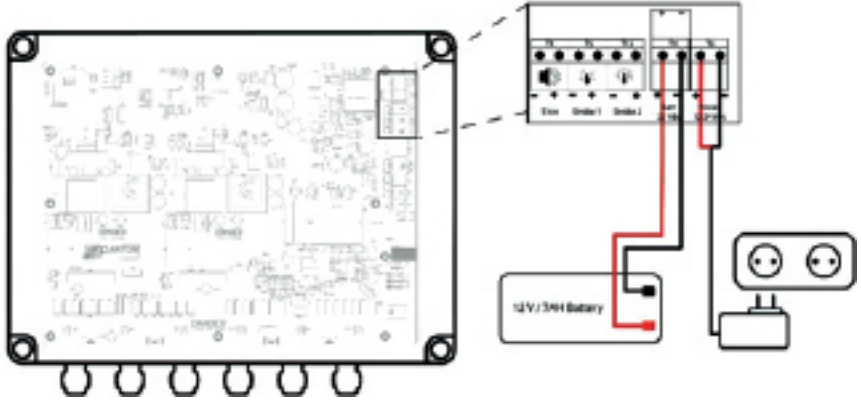


5.10 LOW VOLTAGE WIRING DIAGRAMS

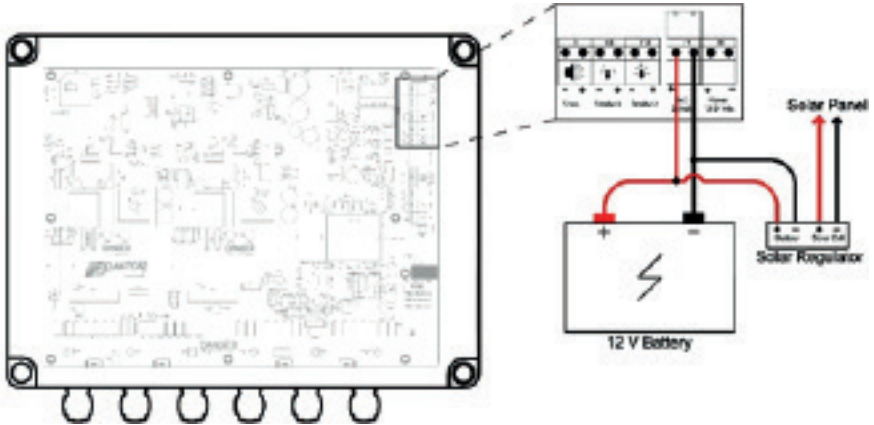
MAINS:



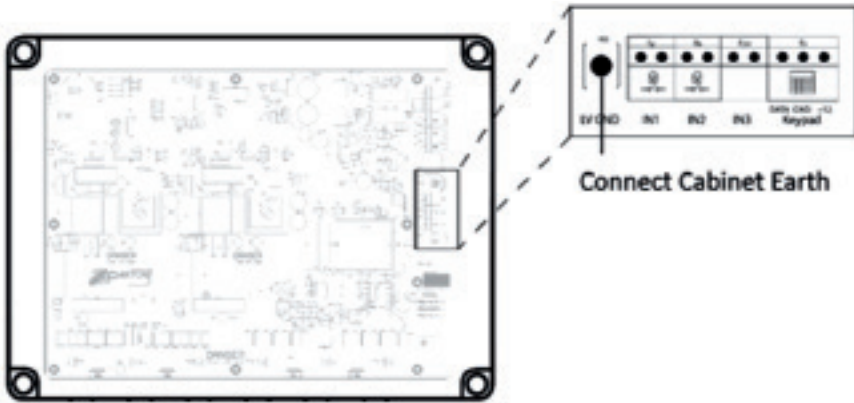
MAINS AND RECHARGEABLE BATTERY:



SOLAR POWERED:



SURGE PROTECTION:



Note: **Do not** connect LV GND to the fence earth rod. It may be connected to a cabinet earth

5.11 ARMING SWITCH

When arming or disarming the energizer you can use the switch on the side of the enclosure.

To turn on you will need to flick the button so the side with the “I” is pressed down. If the energizer is armed and disarmed using an external control method such as the virtual keypad, the switch is not a reliable indicator of the armed state. External control methods will require the switch to be flicked to take control back.

It is recommended that you use the switch for manual testing.



6 CONFIGURATION OPTIONS IN DETAIL

6.1 GROUP ID

A keypad bus group must have only 1 master. The other Energizers/ Monitors in the group are slaves.

If the group contains Z series energizers and monitors, then an energizer should be the master.

Virtual Keypad: Enter the **Configuration** page and alter the **Group ID** value.

Click **Save Settings**.

6.2 HIGH POWER MODE POWER LEVEL

The High-Power mode power level option allows the shocking power of the fence to be adjusted. The actual fence voltage depends on the amount of fence wire and fence conditions. This option may affect the average power drain and therefore backup battery time.

Range 3.0 to 9.9kV. Default 8.0kV

Virtual Keypad: Enter the **Configuration** page and adjust **Zone 1 Output** accordingly. Click **Save Settings**.

6.3 BATTERY CHARGER FLOAT VOLTAGE

This option is used to set the battery charger float value, the correct setting depends on the type of rechargeable 12V battery used.

Range 10.0V to 16.0V. Default 14.2V

Virtual Keypad: Enter the **Configuration** page and adjust **Battery Float** accordingly. Click **Save Settings**.

6.4 BATTERY ALARM VOLTAGE

This option sets the battery voltage threshold below which the general alarm will activate. This alarm can be set to activate one of the relays and is part of the General alarm.

Note: The energizer will not turn off with this alarm, however if the battery voltage continues to fall it will eventually switch off.

Range 0.0V to 16.0V. Default 10.0V

Virtual Keypad: Enter the **Configuration** page and adjust **Battery Alarm** accordingly. Click **Save Settings**.

6.5 PULSE TIME

Sets the period between energizer pulses.

Range 1.0 second to 2.0 seconds. Default 1.3 seconds

Virtual Keypad: Enter the **Configuration** page and adjust **Pulse Time** accordingly. Click **Save Settings**.

6.6 FENCE VOLTAGE ALARM LEVEL

Sets the alarm threshold for a Fence Alarm. If the fence voltage decreases below this threshold for more than the Fence Alarm Delay a fence alarm will occur.

A Fence Short alarm takes precedence over this alarm.

Warning: Setting this level to higher than the normal running voltage of the fence will result in continuous fence alarms.

The other models use the Feed (or Return, if available) voltages as the fence voltage.

Range 0kV to 7.0kV. Default 4.0kV

Virtual Keypad: Enter the **Configuration** page and alter the **Voltage Alarm 1** value. Click **Save Settings**.

6.7 CURRENT ALARM LEVEL

Sets the alarm threshold for a Fence Short alarm. If the feed current on Zone 1 rises above this level for more than the Fence Alarm Delay (Pulse count) a fence alarm will occur.

This value must be set below the Feed 1 current, shown when a short is placed at the midpoint of the fence. The Sector is only shown after a Fence Short alarm occurs.

Range 0A to 150A. Default 20A

Virtual Keypad: Enter the **Configuration** page and adjust **Current Alarm 1** accordingly. Click **Save Settings**.

6.8 GROUND VOLTAGE ALARM LEVEL

Sets the voltage above which the fence ground alarm will occur. If a difference in voltage is measured between the Ground and Ground reference fence terminals of above this level for more than the Fence Alarm Delay (Pulse count) a ground alarm will occur.

This can be used to monitor for Ground stake voltage or fence ground circuit voltage depending on the fence wiring.

This setting is irrelevant if the Ground and Ref Ground terminals are connected together.

Range 0kV to 5.0kV. Default 1.0kV

Virtual Keypad: Enter the **Configuration** page and adjust **Ground Alarm** accordingly. Click **Save Settings**.

6.9 FENCE ALARM DELAY (PULSE COUNT)

This option sets the delay from the moment an alarm occurs to when it is reported. Setting this too low will result in false alarms.

Range 1 second to 90 seconds. Default 30 seconds

Virtual Keypad: Enter the **Configuration** page and adjust **Pulse Count** accordingly. Click **Save Settings**.

6.10 DFD™

DFD™ enables the MB32 to detect a fault at the end of very long fences. Instead of only measuring the peak current the MB32 with DFD™ calculates the “real” current and rejects the “reactive” current.

The current displayed will usually be less than read by a standard hand-held meter with this feature on. There is no theoretical limit to the length of fence that the MB32 can monitor with this feature on. Without DFD™ the limit is approximately 10km.

Default OFF.

Virtual Keypad: Enter the **Configuration** page and select or deselect Distance Fault Detect accordingly. Click **Save Settings**.

6.11 SIREN ON TIME

This option sets the duration of time that the siren will remain on after a fence alarm occurs. After this time the siren will turn off for the Siren Off Time indicated in the table. The siren will sound again if the alarm is still present after this off time has passed.

This may be the subject of local regulations to stop an alarm causing undue disturbance to neighbours, etc.

Note: The Siren On Time will be cut short if the battery falls below the low battery level

Range 0 seconds to 255 seconds. Default 30 seconds

Virtual Keypad: Enter the **Configuration** page and adjust **Siren On Time** accordingly. Click **Save Settings**.

6.12 SIREN OFF TIME

This option sets the amount of time the siren will be off for after the Siren On Time has expired. If an alarm is still present after this off time the siren will sound again.

Range 0 seconds to 255 seconds. Default 30 seconds

Virtual Keypad: Enter the **Configuration** page and adjust **Siren Off Time** accordingly. Click **Save Settings**.

6.13 SIREN CYCLES

This option sets the maximum number of times the siren will sound for the “on time” if the alarm continues. This may be limited by local regulations to stop an alarm causing undue disturbance to neighbours etc.

Note: This is the maximum number of cycles for 1 continuous alarm, intermittent alarm events could cause more than this number of siren soundings.

Range 1 cycle to 9 cycles. Default 3 cycles

Virtual Keypad: Enter the **Configuration** page and adjust **Siren Cycles** accordingly. Click **Save Settings**.

6.14 AUTO REARM TIME

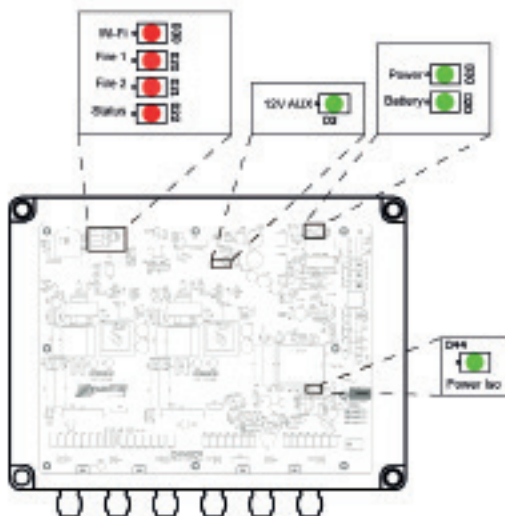
This option sets the time which must elapse before another alarm will sound after the first alarm has timed out (gone completely through its cycles without being turned off). If an event occurs (such as a low fence voltage) which triggers the siren, any other events which would otherwise trigger the siren (such as a gate alarm) will be ignored while the siren is sounding and until after the Auto Re-arm time has passed. A setting of 0 will disable Auto Re-arm. If this time is set to less than the Siren Off Time, the Energizer may re-arm in the “Off” time and the number of Siren Cycles will be reduced.

Range 1 minute to 240 minutes. Default OFF

Virtual Keypad: Enter the **Configuration** page and adjust the **Auto Rearm Time** dropdown list accordingly. Click **Save Settings**.

7 DEVICE TROUBLESHOOTING

7.1 STATUS AND ERROR LEDS



The status LEDs on the PCB allow the user to quickly check the status of the unit and if any action needs to be taken.

Name	LED	Description
Wi-Fi	D30	Flashes Wi-Fi status: Once for station mode, twice for Wi-Fi connected
Fire 1	D20	Flashes when Zone 1 is armed; Long flash if it is in alarm
Fire 2	D21	Flashes when Zone 2 is armed; Long flash if it is in alarm
Status	D22	Flashes error codes, see table 4
Power	D19	Shows 24V input power is available (24V is being supplied)
Battery	D11	Shows 12V power is available (Battery is connected)
12V Aux	D3	12V Aux power
3V3	D62	Shows that there is no issue with the 3.3V rail
Iso power	D44	Shows Isolated processor power is turned on

Table 3 - LED Status Lights

Status LED Flashes	Meaning	Corrective Action
1	Tamper Alarm	Replace the LID, or Fit J12 inhibit tamper
2	24Vdc power fail	Restore power, check the main power fuse
3	Low battery, bad battery	Charge or replace battery, check the battery fuse
4	PCb service fault	Return to repair/service centre to be checked by a technician

Table 4 - LED Error Codes

The most common problems with electric fence energizers are:

- Moisture and Ants
- Lightning
- Flat batteries

The intelligent series of energizers will self diagnose and report their status (See Errors and Error Codes) on the LED and LCD displays.

7.2 MOISTURE AND ANTS

Moisture and Ants should not be a significant problem for the MB32 as it comes in a weatherproof case. Still, where possible, keep the energizer protected from the weather.

7.3 LIGHTNING

The MB32 range of energizers is covered with a three-year warranty that excludes Lightning. Surge protection components inside the energizer are fitted to reduce the risk of damage by lightning. However, nature is capable of performing more extremely than can be tested for in the laboratory; to ensure the wellbeing of your investment for the longer term, it is recommended that a Lightning Protection Kit is installed to prevent lightning damage and possible costly repairs.

7.4 FLAT BATTERIES

The MB32 series of energizers require a battery that is in good condition to run correctly. The energizer will protect the battery by slowing down and eventually stopping altogether as the battery charge is depleted. For best results, check on the energizer at regular intervals. If you are not getting the expected life from the battery consider having it checked by an auto electrician.

The MB32 series of energizers indicate a depleted battery by flashing the red Error LED twice (see "Parts of the energizer" above).

If the battery fails it should be recycled, not sent to landfill. Return it to the manufacturer if unsure.

8 COMMON FENCE PROBLEMS

The most common problem with electric fences is low voltage on the live wires caused by

- Insufficient 'earth'
- Shorts on the fence

For tips on fence construction please see an Electric Fencing Manual.

8.1 TESTING THE 'EARTH'

The 'earth' is essential to all electric fence systems. Larger energizers require more earth rods. Additionally, all energizers require a low resistance wired connection from the energizer earth terminal to the earth rod.

Short the end of your fence to earth by hammering a metal stake into the soil and connecting this to the live fence wire. Using an electric fence volt meter or a Electric Fence Fault Finder (do not use a standard multimeter) check what the voltage is at the earth terminal of the energizer. In general you should see a reading less than 300 volts (0.3kV).

8.2 TESTING THE FENCE, FINDING SHORTS

To test the performance of the fence or find faults on the fence an electric fence voltmeter is essential and a Electric Fence Fault Finder is even better. An effective fence will have more than 2 kV (2000 volts).

9 AUSTRALIAN STANDARDS REQUIREMENTS - AS60335.2.76

Instructions for installation and connection of electric fences in Australia, as required under AS60335.2.76

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9.1 DEFINITIONS

Connecting lead	an electric conductor, used to connect the energizer to the electric fence or the earth electrode
Electric animal fence	an electric fence used to contain animals within or exclude animals from a particular area
Electric fence	a barrier which includes one or more electric conductors, insulated from earth, to which electric pulses are applied by an energizer

9.2 GENERAL REQUIREMENTS FOR ELECTRIC FENCES

- 1. Electric animal fences** shall be installed and operated so that they cause no electrical hazard to persons, animals or their surroundings.
- 2. Electric animal fence** constructions which are likely to lead to the entanglement of animals or persons shall be avoided.
- An **electric animal fence** shall not be supplied from two different **energizers** or from independent fence circuits of the same energizer. For any two separate **electric animal fences**, each supplied from a separate **energizer** independently timed, the distance between the wires of the two **electric animal fences** shall be at least 2 m. If this gap is to be closed, this shall be affected by means of electrically non-conductive material or an isolated metal barrier.
- Barbed wire or razor wire shall not be electrified by an **energizer**.
- Any part of an **electric animal fence** that is installed along a public road or pathway shall be identified at frequent intervals by warning signs securely fastened to the fence posts or firmly clamped to the fence wires.

- 5.1 The size of the warning sign shall be at least 100 mm x 200 mm.
- 5.2 The background colour of both sides of the warning sign shall be yellow. The inscription on the sign shall be black and shall be either:
- the symbol of Figure 1, or
 - the substance of TAKE CARE – ELECTRIC ANIMAL FENCE.
- 5.3 The inscription shall be indelible, inscribed on both sides of the warning sign and have a height of at least 25 mm.



Figure 1 - Warning Plate Symbol

- The **energizer earth electrode** shall penetrate the ground to a depth of at least 1.2m.
- Connecting leads** that are run inside buildings shall be effectively insulated from the earthed structural parts of the building. This may be achieved by using insulated high voltage cable.
- Connecting leads** that are run underground shall be run in a conduit of insulating material or else insulated high voltage cable shall be used. Care must be taken to avoid damage to the connecting leads due to the effects of animal hooves or tractor wheels sinking into the ground.
- Connecting leads** shall not be installed in the same conduit as the mains supply wiring, communicating cables or data cables.

10. **Connecting leads** and electric animal fence wires shall not cross above overhead power or communication lines.
11. Crossings with overhead power lines shall be avoided wherever possible. If such a crossing cannot be avoided, it shall be made underneath the power line and as nearly as possible at right angles to it.
12. If **connecting leads** and **electric animal fence** wires are installed near an overhead power line, the clearances shall be not less than those shown in table 3.

Power line voltage V	Clearance m
≤1 000	3
>1 000, ≤33 000	4
>33 000	8

Table 1 - Minimum Clearances from Power Lines

13. If **connecting leads** and **electric animal fence** wires are installed near an overhead power line, their height above the ground shall not exceed 3m. This height applies either side of the orthogonal projection of the outermost conductors of the power line on the ground surface, for a distance of
 - 2 m for power lines operating at a nominal voltage not exceeding 1,000 V
 - 15 m for power lines operating at a nominal voltage exceeding 1,000 V.

9.3 PARTICULAR REQUIREMENTS FOR ELECTRIC ANIMAL FENCES IN AUSTRALIA

1. A distance of at least 10 m shall be maintained between the **energizer earth electrode** and any other earthing system connected parts such as the power supply system protective earth or the telecommunication system earth.
2. **Electric animal fences** intended for deterring birds, household pet containment or training animals such as cows need only be supplied from low output **energizers** to obtain satisfactory and safe performance.
3. In **electric animal fences** intended for deterring birds from roosting on buildings, no **electric fence** wire shall be connected to the **energizer earth electrode**. A warning sign shall be fitted to every point where persons may gain ready access to the conductors.
4. A non-electrified fence incorporating barbed wire or razor wire may be used to support one or more off-set electrified wires of an **electric animal fence**. The supporting devices for the electrified wires shall be constructed so as to ensure that these wires are positioned at a minimum distance of 150 mm from the vertical plane of the non-electrified wires. The barbed wire and razor wire shall be earthed at regular intervals.
5. Where an **electric animal fence** crosses a public pathway, a non-electrified gate shall be incorporated in the **electric animal fence** at that point or a crossing by means of stiles shall be provided. At any such crossing, the adjacent electrified wires shall carry warning signs.

9.4 PROHIBITED MOUNTING

Electric fence conductors should not be mounted on a support used for any overhead power line.

10 WARRANTY

This product carries a limited warranty against defective components and workmanship. The warranty excludes damage caused by acts of Nature such as lightning or flooding, power supply surges, rough handling, malicious actions or incorrect wiring.

Whilst every effort has been made to check that the information contained in this manual is accurate, Strainrite Fencing Systems will not be liable to loss or damage resulting from construction, operation or failure of any installation or system.

10.1 FOR ASSISTANCE

Product information.
visit www.strainrite.co.nz for more information

Email
visit www.strainrite.co.nz and fill in the contact form.

For more information on our complete range of electric fencing products please see the website: www.strainrite.co.nz

Region	Phone
New Zealand	04 524 9027
Rest of world	+64 4 524 9027

10.2 SERVICE OR REPAIRS

If service is required, package your energizer carefully and return it to the place of purchase or your nearest Strainrite distributor along with your proof of purchase.

11 NOTES



Strainrite[®]
FENCING SYSTEMS

ELECTRIC FENCE ENERGIZER

WIFI REMOTE APP ENABLED

POWERFUL YET SAFE*

PLUG N PLAY - EASY SETUP

SPK00288