



FENCING ENERGISERS

INSTRUCTIONS



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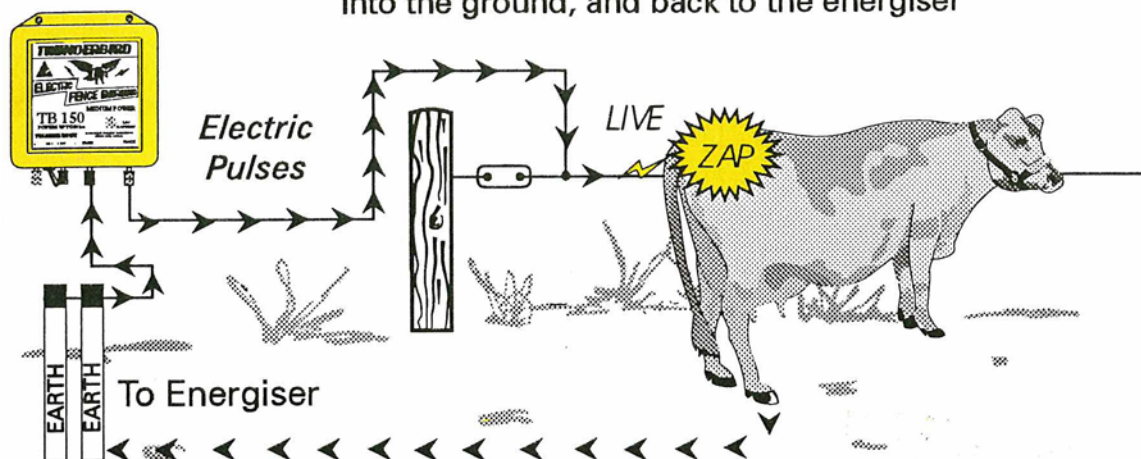


HELPFUL HINTS

PRINCIPLES OF: How an electric fence works

Ground earth return system

The pulse travels from the live wire through the animal into the ground, and back to the energiser



EARTH STAKES

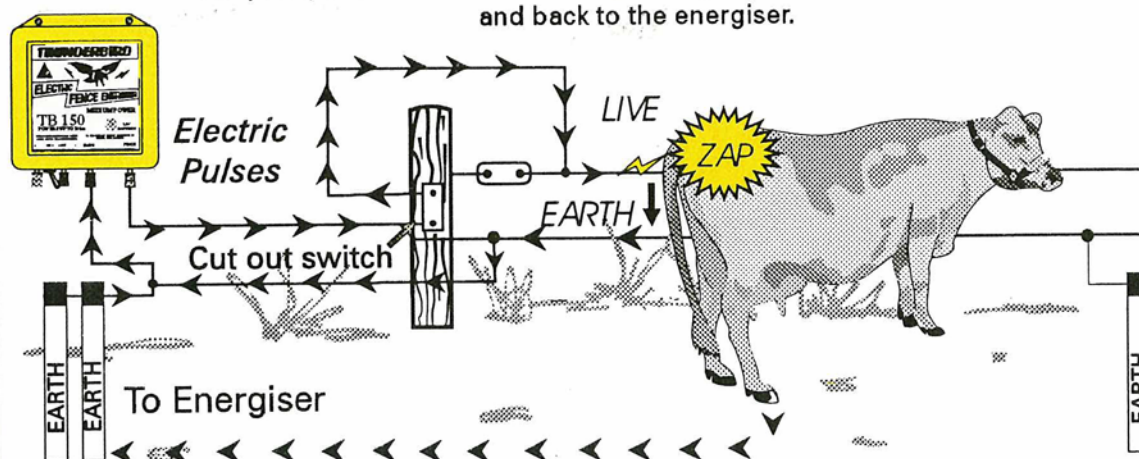
This method requires good soil moisture.

Recommended for strip grazing only

Earth wire return system

(The preferred method)

The pulse travels from the live wire through the animal to the earth wire, and back to the energiser.

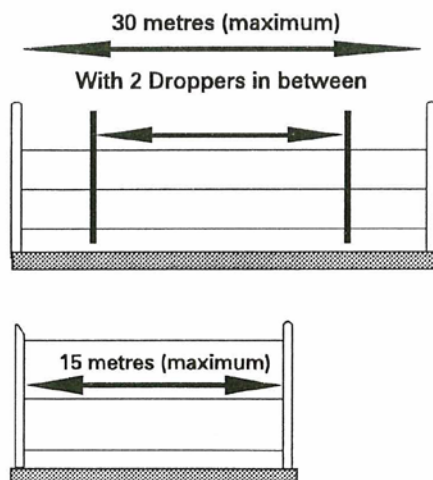


EARTH STAKES

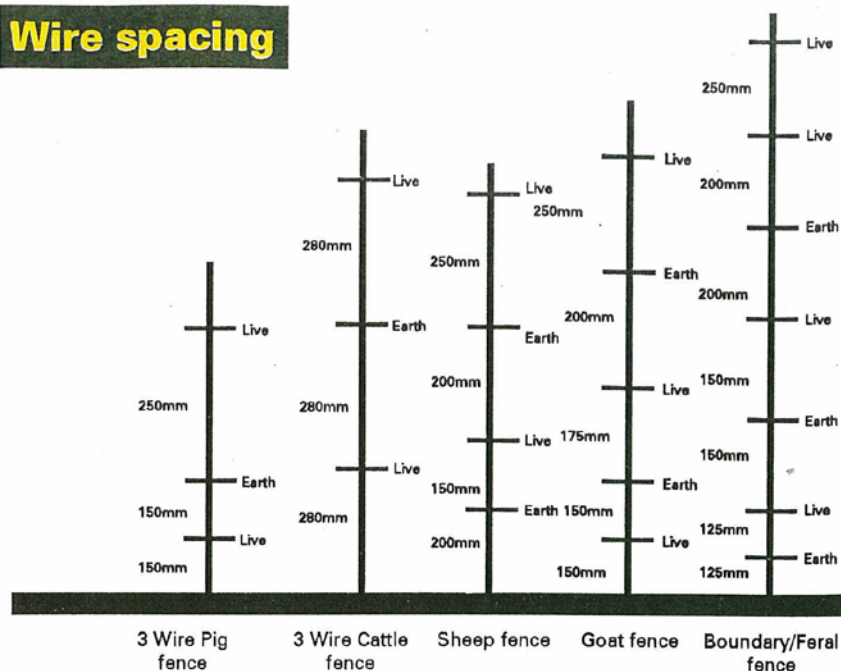
- ⚠ The pulse must return back to the energiser for a shock to be received.
- ⚠ Use a bentonite earth kit in dry soil areas.
- ⚠ Earth wires are recommended for long fence or dry soil areas.

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Post spacing

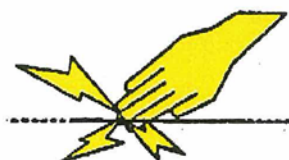


Wire spacing



Safety Regulations and Requirements

1. Only one energiser must be pulsed at a time.
2. Barbed wire should not be electrified.
3. Energiser should if possible, be installed inside a building in a position free from risk of mechanical damage.
If mounted outdoors, the energiser should be mounted on a substantial structure in a position free from mechanical or live stock damage.
4. Each energiser should be connected to a separate earthing peg at least 10 metres away from any other earthing devices
5. A Fence line that crosses beneath overhead power lines should be avoided wherever possible. If such a crossing cannot be avoided, the fence should be made at a right angle to the overhead power line, or as near as possible to it.
If an electric fence is or has been installed in the vicinity of an overhead power line, the vertical distance between any fence wire or connecting lead and the surface of the earth should not exceed 2 metres.
6. Fence wiring should be installed so that it is well away from any telephone or telegraph line or radio aerial.
7. An electric fence when installed in such a position that members of the public might reasonably be expected to touch it, should be identified by suitable signs clamped to the conductor or fastened to the post at intervals not exceeding 90 metres. The sign should have a size of 200mm * 100mm. The inscription on the sign should take the form of either the symbol below or the words "ELECTRIC FENCE".
Any lettering should have a height of at least 25mm. It is recommended that the basic colour of the sign be yellow inscriptions.



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Electric fence warning sign.
Clip-on double sided.

8. Where the energiser is to supply a system of conductors used for deterring birds from roosting on building, no conductor should be connected to earth. A switch should be installed to provide a means of isolating the controller from all poles of the supply and clear warning notices should be fitted at every point where persons may have ready access to the conductors. The notice should bear the words "LIVE WIRES" in block letters no less than 13mm high, the letters should be red on a white background and the size of each notice should be no less than 62mm*50mm overall.

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Installing Energisers

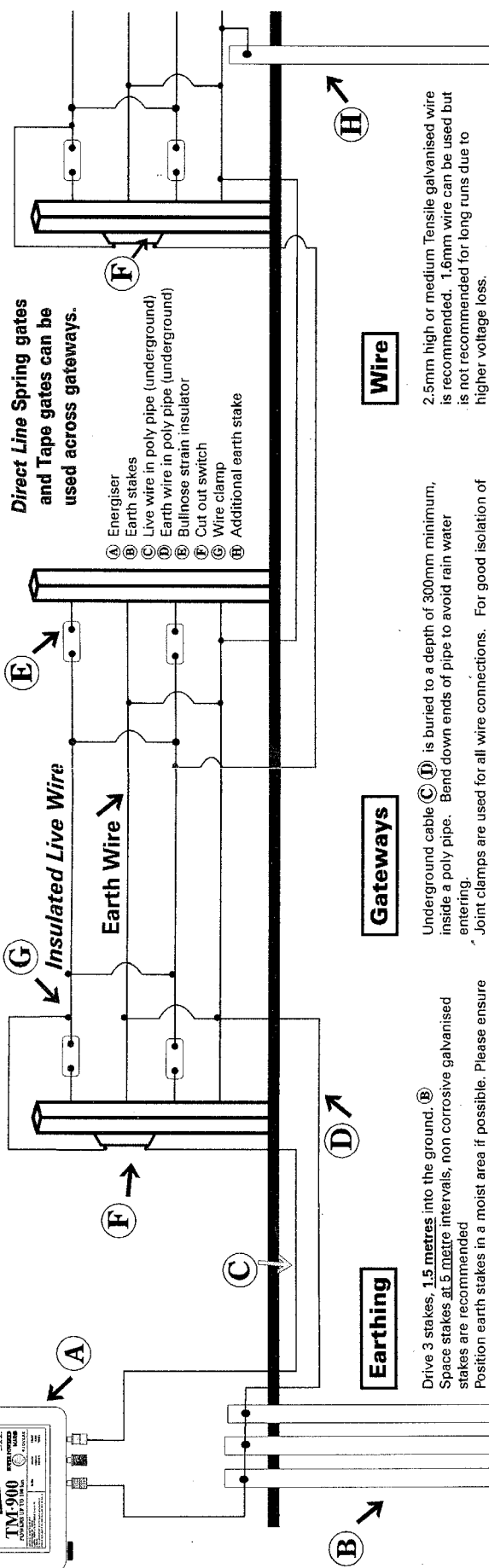
Install Mains Energisers inside a shed if possible. Cover Battery Energisers from weather. Use underground cables for earth and fence connection. Do not use **COPPER WIRE**. Please, only use Galvanised wire.

Wire Connectors

To achieve a good electrical joint, use a wire **Joint Clamp**. Twisting wires is not recommended. For joining **Earth Return** wires, we recommended that a **Joint Clamp** be used also.

Paralleling Common Wire

To reduce voltage loss, join all live wires and earth wires together (live to live, earth to earth). Use underground cables and joint clamps. Parallel wires from start to finish of each strain.



Wire

2.5mm high or medium Tensile galvanised wire is recommended. 1.6mm wire can be used but is not recommended for long runs due to higher voltage loss.

DO NOT USE BARBED WIRE IN ELECTRIC FENCING!

Gateways

Underground cable (C) is buried to a depth of 300mm minimum, inside a poly pipe. Bend down ends of pipe to avoid rain water entering.

Joint clamps are used for all wire connections. For good isolation of electrical current a cut out switch is best installed at the gate way or in 1km intervals. (F)

Earthing

Drive 3 stakes, 1.5 metres into the ground. (B) Space stakes at 5 metre intervals, non corrosive galvanised stakes are recommended. Position earth stakes in a moist area if possible. Please ensure that they are placed 10 metres away from any other earthing systems.

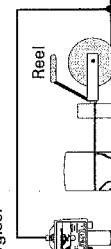
Connect stakes to earth wire/s in fence. Additional earth wire stakes (B) are required every 1.5 km of the fence run. Connect to earth return wire/s using joint clamps

Ask your **Direct Line** stockist for the following information sheets:

- Floodways • Radio Interference • Paddock layout
- Fault finding • Testing your earth

Strip Grazing

Energiser



Earth stake 900mm into ground (min)

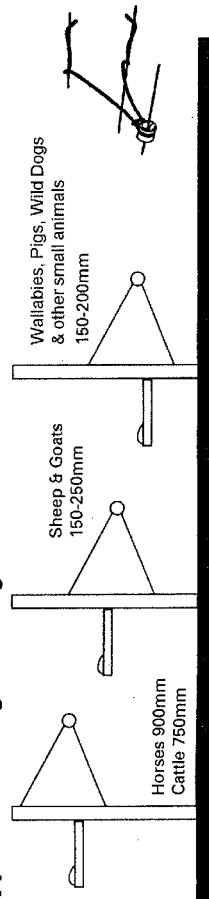
Strip Grazing Wire & Post Spacing

Post spacing	15 metres approx. (flat Ground)
Single wire cattle fence	Wire 800mm off ground.
Twin wire cattle fence	Wire 1 450mm off ground.
	Wire 2 900mm off ground.
Sheep 3 wire fence	Wire 1 250mm off ground.
	Wire 2 500mm off ground.
	Wire 3 800mm off ground.

Offset wires

Offset wires are used to upgrade existing fences, extending fence life and reducing damage. Installed on one or both sides of fence, improves stock control.

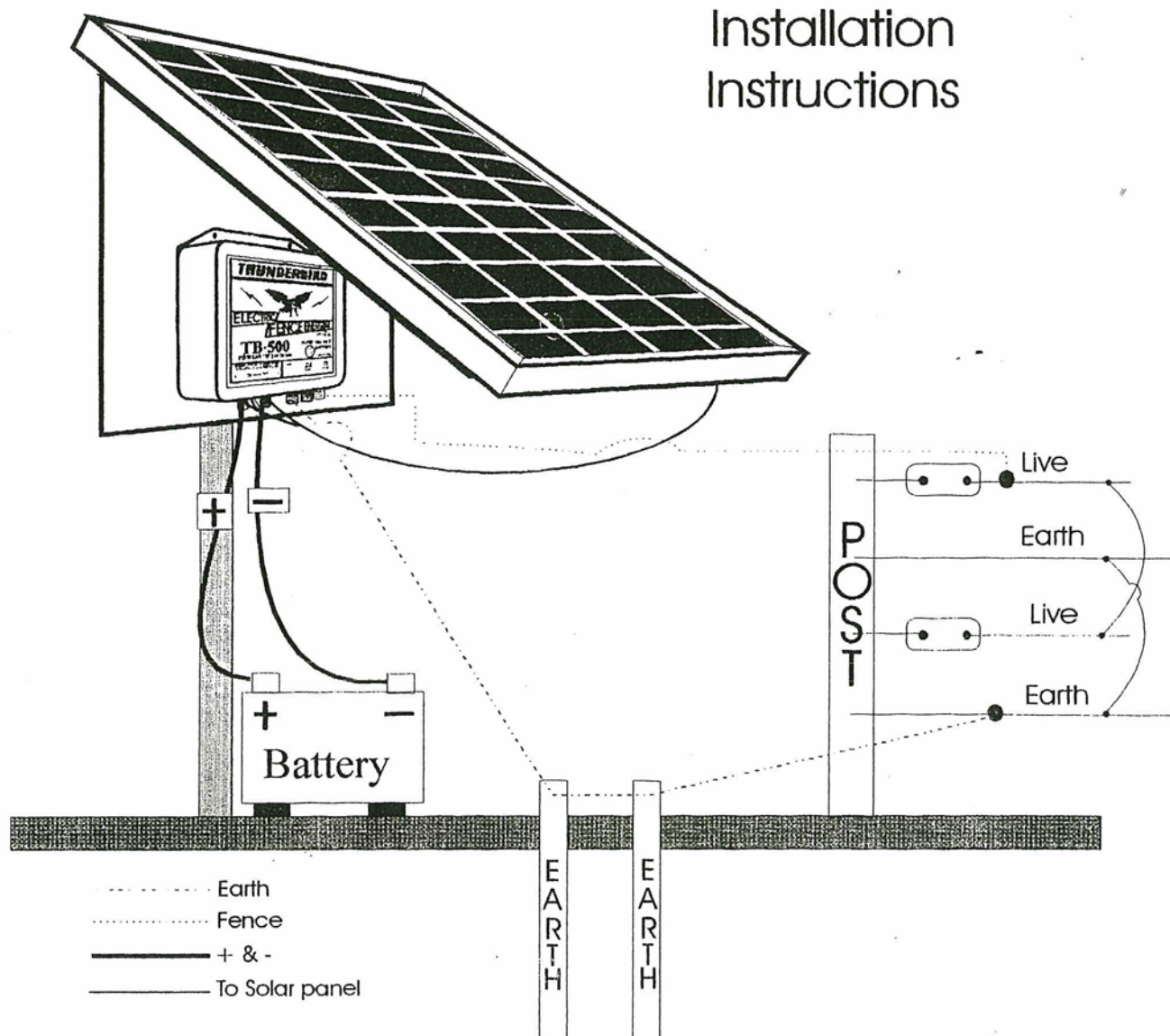
Approx. wire height settings



Space offsets approx 15 metres apart (MAX)
Always earth the existing fence by connecting it to earth stakes.

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Installation Instructions



Position mounting post(s) securely into ground (Concrete if possible) in an area free of shading or possible mechanical damage, near the middle of the fence line. Use galvanised or 8' steel star post (galvanised is recommended).

Carefully mount solar panel and frame to post(s), tighten U-Bolt securely. Face panels to the equator (face panel north if in southern hemisphere).

Connect Solar panels +(red) to energisers (+) then connect solar panel - (black) to energiser (-) terminals. Then connect battery leads +(red) to energiser (+) and connect -(black) to energiser (-) terminals.

Connect energiser to the earth system and insulated fence.

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⚡ How The System Works

The energiser is powered by the battery throughout the day and night.
The battery is in turn recharged by the solar panel during sunlight hours.

⚡ Maintenance

Clean solar panel with soapy water regularly.
Clean and re-tighten low voltage connections.
Check battery electrolyte

⚡ Batteries

Deep cycle or car type rechargeable batteries are suitable. Install battery in a well ventilated, but covered position off the ground.
Do not position battery directly under energiser, gases can cause corrosion.

⚡ Solar Panels

Panels are impact resistant, however contact with livestock and flying debris, mechanical or natural, should be avoided.

⚡ Mounting Brackets

Set at the recommended 45 degrees (approx) for peak efficiency.
Tie panel down to pegs in high wind areas.

Model	TB-10S	TB-70	TB-150	TB-300	TB-500
Powers up to	2km	10km	20km	40km	70km
Systems Voltage	6volt	12volt	12volt	12volt	12volt
Mounting frames supplied	Yes	Yes	Yes	Yes	Yes
Recommended battery size	4 amp	30-50 amp	50-80 amp	80-100 amp	100-120 amp

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Battery Energizers.

D003 - 14/5/03

Note: Read all instructions including helpful hints brochure. Technipharms 'Thunderbird' range of battery energizers are highly efficient and perform extremely well, using small amounts of electricity.

Installation Instructions.

These products should provide years of reliable service if installed correctly. The following are some helpful points to assist in your installation.

- Always install the energizer as close to the middle of the fence line as possible. This reduces the distance the pulse needs to travel resulting in better shock to animals,
- Mount energizer under cover in a well ventilated position,
- If required, consider the use of insecticides to repel the presence of spiders and other insects,
- Install unit out of the reach of children,
- Use earth return wires connected to earth stakes,
- Raise the battery off the ground,
- Do not use copper wire when connecting energizer to the fence,
- Ensure fence wire connections at the energizer terminals are wrapped firmly around the terminals, and that terminals are kept tightened,
- These fence energizers operate from a 12 volt D.C. battery source, A 12 volt Solar system can be used in conjunction with the energizer
- Technipharms range of Thunderbird battery electric fence energizers meet the Australian and New Zealand safety standards and comply with the EMC regulations

Helpful Advice.

Maintenance: Regular inspection of electric fences should be undertaken, to prevent vegetation or other wires interfering with live wires

Regular inspection of energizer should be undertaken to ensure there is no build up of insects i.e. spiders or ants, or accumulation of dirt that may affect the output of, or do damage to the energizer

Regularly clean battery terminals and clips,

Regularly check battery electrolyte (acid/fluid)

If a solar panel is installed, regularly clean panel with soapy water to ensure maximum voltage output from the panel,

Maintenance: As a protective measure, Technipharm advises that a lightning diverter be installed, to reduce damage done to the energizer in the event of a lightning strike to the fence.

Safety: Electric fences with public frontage should carry warning signs,

Caution: Young children should not be left unsupervised in the vicinity of an operating energizer or fence,

Warning: Barbed wire should not be electrified,

Warning: Persons coming into contact with high voltage impulses on a high output connection may have their normal physiological functions interrupted.

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"Pulse Tracka" (Voltage Output Indicator).

(M400, M800, M1200, M1800 units only)

The energizer has 6 pulsing lights in a chasing motion, that flash with each energizer pulse. These lights indicate the amount of voltage been delivered to the fence.

For Example:

- If all lights are flashing then no significant shorts are present on the fence line,*
- If 4-5 lights are flashing, this indicates that there is a moderate short somewhere on the fence,*
- If only 2-3 lights are flashing then a heavy short is present somewhere on the fence,*

The Pulse Tracka is designed to work when the fence is attached to the high output fence connection and not the low output fence connection. (see details below on the use of high and low output terminals)

Use of High and Low Output terminals.

(M400, M800, M1200, M1800 units only)

Technipharm advises that to get optimum results from the energizer that the main electric fence for the farm should be run from the high output terminal.

Placing the main farm line on the Low output terminal will decrease the number of volts produced and hence the power on the fence line. This however will not decrease the power consumption of the energizer to any significant degree.

The low power terminal is intended for use where there is a high chance of human contact or with house hold animals namely around the house paddock where children and pets may be playing.

Mains A.C. Light.

The mains A.C. light at the top of the energizer, glows to indicate mains power is received by the energizer and that the power point is working correctly.

Over pulse Protection Electronics.

Thunderbird energizers have developed a safety system into these energizers so that if a fault occurs within the energizer (moisture, insects etc), the electronics will turn the energizer off for approximately 10 seconds, the energizer then turns back on. If the fault is still present, the unit turns back off again. This repeats until the fault is no longer present.

The power supply light will be on at this time but the 'pulse tracka' lights will not be pulsing across the screen. If this should continue for an extended period, Contact Technipharm on 0800 80 90 98.

When the energizer is turned on at the wall, after the first few pulses it may turn itself off for approximately 10 seconds for an internal safety check. This is normal and should not cause concern.

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Mains Energizers.

D004 - 14/5/03

Note: Read all instructions including helpful hints brochure. Technipharm's 'Thunderbird' range of mains energizers are highly efficient and perform extremely well, using small amounts of electricity.

Installation Instructions.

These products should provide years of reliable service if installed correctly. The following are some helpful points to assist in your installation.

- Mount energizer indoors, in a well ventilated position,
- If the energizer is to be mounted outdoors, provide a cover or shelter,
- Install unit out of the reach of children,
- If required, consider the use of insecticides to repel the presence of spiders and other insects,
- Use earth return wires connected to earth stakes,
- Do not use copper wire when connecting energizer to the fence,
- Ensure fence wire connections at the energizer terminals are wrapped firmly around the terminals, and that terminals are kept tightened,
- If the supply cord of this unit is damaged, it must only be replaced by a repair shop, appointed by Technipharm or the manufacturer because special purpose tools are required,
- Technipharm's range of Thunderbird M400, M800, M1200, M1800 electric fence energizers meet the Australian and New Zealand safety standards approval number V00395 and other required regulations,
- Technipharm's range of Thunderbird M100 & M200 electric fence energizers meet the Australian and New Zealand safety standards approval number V99202 and other required regulations,

Helpful Advice.

Maintenance: Regular inspection of electric fences should be undertaken, to prevent vegetation or other wires interfering with live wires

Regular inspection of energizer should be undertaken to ensure there is no build up of insects i.e. spiders or ants, or accumulation of dirt that may affect the output of, or do damage to the energizer

Maintenance: As a protective measure, Technipharm advises that a lightning diverter be installed, to reduce damage done to the energizer in the event of a lightning strike to the fence.

Safety: Electric fences with public frontage should carry warning signs,

Caution: Young children should not be left unsupervised in the vicinity of an operating energizer or fence,

Warning: Barbed wire should not be electrified,

Warning: Persons coming into contact with high voltage impulses on a high output connection may have their normal physiological functions interrupted.

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"Pulse Tracka" (Voltage Output Indicator).

(B300, B500 & B1000 units only)

The energizer has 6 pulsing lights in a chasing motion, that flash with each energizer pulse. These lights indicate the amount of voltage been delivered to the fence.

For Example:

- If all lights are flashing then no significant shorts are present on the fence line,*
- If 4-5 lights are flashing, this indicates that there is a moderate short somewhere on the fence,*
- If only 2-3 lights are flashing then a heavy short is present somewhere on the fence,*

The Pulse Tracka is designed to work when the fence is attached to the high output fence connection and not the low output fence connection. (see details below on the use of high and low output terminals)

"Pulse Light" (Output Indicator).

(B40, B70 & B150 units only)

Flashes with each energizer pulse, approximately 1.2 seconds apart. If light is not flashing, fence may have serious short some where on fence line.

Use of High and Low Output terminals.

(B300, B500 & B1000 units only)

Technipharm advises that to get optimum results from the energizer that the main electric fence for the farm should be run from the high output terminal.

Placing the main farm line on the Low output terminal will decrease the number of volts produced and hence the power on the fence line. This however will not decrease the power consumption of the energizer to any significant degree.

The low power terminal is intended for use where there is a high chance of human contact or with house hold animals namely around the house paddock where children and pets may be playing.

Low Battery Light.

All Battery energizers are equipped with a low battery warning light to indicate when the battery may require charging. With B300, B500 & B1000 energizers, this light is found above the pulse tracka row of lights. With B40, B70 & B150 this light is the bottom of the two lights on the energizers.

Over pulse Protection Electronics.

Thunderbird energizers have developed a safety system into these energizers so that if a fault occurs within the energizer (moisture, insects etc), the electronics will turn the energizer off for approximately 10 seconds, the energizer then turns back on. If the fault is still present, the unit turns back off again. This repeats until the fault is no longer present.

The power supply light will be on at this time but the 'pulse tracka' lights will not be pulsing across the screen. If this should continue for an extended period, Contact Technipharm on 0800 80 90 98.

When the energizer is turned on at the wall, after the first few pulses it may turn itself off for approximately 10 seconds for an internal safety check. This is normal and should not cause concern.