



FENCE ENERGIZER

M1400

PUBLISHED BY
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Gallagher M1400 Mains Powered Energizer User Manual for animals

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IMPORTANT INFORMATION

WARNING: Read all instructions

- **Warning:** The appliance is not intended for use by young children or infirm persons without supervision.
- Young children should be supervised to ensure that they do not play with the appliance.
- Regularly inspect the supply cord, cables, wires and energizer for any damage. If found damaged in any way, immediately cease use of the energizer and return it to a Gallagher Authorised Service Centre for repair in order to avoid a hazard.
- Energizer must be installed in a shelter and the supply cord must not be handled when the ambient temperature is below +5 deg C.
- It is recommended that, in all areas where there is a likely presence of unsupervised children who will be unaware of the dangers of electric fencing, that a suitably rated current limiting device having a resistance of not less than 500 ohms be connected between the energizer and the electric fence in this area.
- Check your local council for specific regulations.
- Fence wiring should be installed well away from any telephone or telegraph line or radio aerial.
- Well maintained electric fences kept clear of vegetation with high quality insulation are extremely unlikely to cause fires. In times of extreme fire risk, disconnect energizer.
- Do not mount in places exposed to heat sources (e.g. a sun heated metal wall.)
- Refer servicing and replacement batteries to a Gallagher Authorised Service Centre.
- Do not connect two Energizers to the same earth system.
- If connected to a mains power circuit that doesn't have a Residual Current Device (RCD), then a plug-in RCD should always be used.
- Ensure the Energizer is fully protected from rain, condensation and other sources of moisture.
- Electric animal fences and their ancillary equipment shall be installed, operated and maintained in a manner that minimizes danger to persons, animals or their surroundings.
- Do NOT become entangled in the fence. Avoid electric fence constructions that are likely to lead to the entanglement of animals or persons.
- **WARNING - INSTALLERS /USERS SHOULD NOTE:**
 Avoid contacting the fence with the head, mouth, neck or torso. Do not climb over, through or under a multi-wire electric fence. Use a gate or a specially designed crossing point.
- An electric animal fence shall not be supplied from two separate 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 2.5m. If this gap is to be closed, this shall be effected by means of electrically non-conductive material or an isolated metal barrier.
- Barbed wire or razor wire shall not be electrified by an energizer.
- A non-electrified fence incorporating barbed wire or razor wire may be used to support one or more

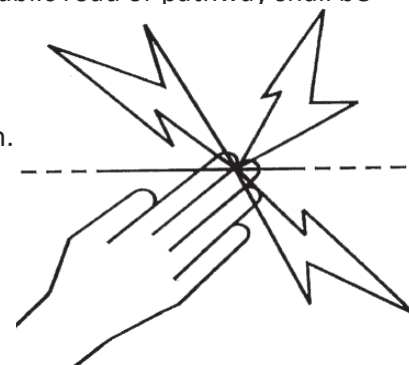
off-set electrified wires of an electric animal fence. The supporting devices for the electrified wires shall be constructed so as to ensure that these wires are positioned at a minimum distance of 150 mm from the vertical plane of the non-electrified wires. The barbed wire and razor wire shall be earthed at regular intervals.

- Follow the energizer manufacturer's recommendations regarding earthing.
- A distance of at least 10 m (33 ft) shall be maintained between the energizer earth electrode and any other earthing system connected parts such as the power supply system protective earth or telecommunications system earth.
- Connecting leads that are run inside buildings shall be effectively insulated from the earthen 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 conduit of insulating material or else insulated high voltage lead-out 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, communication cables or data cables.
- Connecting leads and electric animal fence wires shall not cross above overhead power or communication lines.
- 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.
- If connecting leads and electric animal fence wires are installed near an overhead power line, the clearances shall not be less than those shown in the table following.

Minimum clearances from power lines for electric animal fences

Power line Voltage V	Clearance m
Less than or equal to 1 000	3
Greater than 1 000 and less than or equal to 33 000	4
Greater than 33 000	8

- If connecting leads and electric animal fence wires are installed near an overhead power line, their height above the ground shall not exceed 3 m
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.
- 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.
- 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.
- Fence wiring should be installed well away from any telephone or telegraph line or radio aerial.
- 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.
- Any part of an electric animal fence that is installed along a public road or pathway shall be identified by electric fence warning signs (G6020) at regular intervals that are securely fastened to the fence posts or firmly clamped to the fence wires.
- The size of the warning sign shall be at least 100mm x 200mm.
- 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 substance of "CAUTION: Electric Fence" or,
 - the symbol shown:



- The inscription shall be indelible, inscribed on both sides of the warning sign and have a height of at least 25mm.
- Ensure that all mains operated, ancillary equipment connected to the electric animal fence circuit provides a degree of isolation between the fence circuit and the supply mains equivalent to that provided by the energizer.
- Protection from the weather shall be provided for the ancillary equipment unless this equipment is certified by the manufacturer as being suitable for use outdoors, and is of a type with a minimum degree of protection IPX4.

This energizer complies with international safety regulations and is manufactured to international standards.

Gallagher reserves the right to make changes without notice to any product specification to improve reliability, function or design. E & OE.

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Save these instructions.

HOW THE ENERGIZER WORKS

The energizer sends electrical pulses along the fence line, about one second apart. These pulses give the animal a short, sharp, but safe shock. The shock doesn't harm the animal. It is sufficiently memorable that the animal never forgets the shock, and will avoid the fence.

Practical Hints

- Check your local ordinance on fencing laws: local laws may require a permit before use.
- Check the fence periodically. Remove any fallen branches, weeds or shrubs because these will cause the fence to short out and will reduce animal control.
- All animals need time to learn to respect the fence. It may take several days to train the animal and the fence may require minor adjustments.
- Animals that are prone to jumping may be difficult to confine. You may need to try different fence heights to determine the best height.
- Use top quality insulators: low quality or cracked insulators and plastic tubing are not recommended because they will cause shorting.
- Use joint clamps on all steel wire connections to ensure a high quality circuit.
- This energizer must be earthed using galvanised metal earth stakes to ensure the electric fence works correctly.
- Double Insulated Cable should be used in buildings, under gateways and where soil could corrode exposed galvanised wire. Never use household electrical cable. It is made for a maximum of 600 volts and will leak electricity.
- On permanent power fencing, use high tensile 12.5 gauge (2.5 mm) wire.

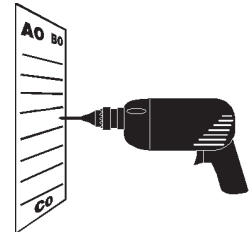
INSTALLATION GUIDE

Step 1. Install the Energizer

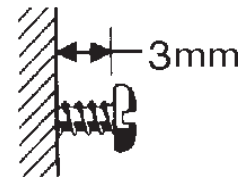
Mount the energizer on a wall, under cover and out of reach of children. Install where there is no risk of the energizer incurring fire or mechanical damage and if possible away from heavy electrical equipment eg. pumps or other items that may cause electrical interference.



- a) Using the template on the back page, drill 2 x 4mm (5/32") holes (A & B).
- b) Fix the screws provided into the wall leaving the head of the screw about 3mm (1/8") out from the wall.
- c) Place the energizer over and slide down onto the mounting screws.



a



b

Step 2. Install the Earth system

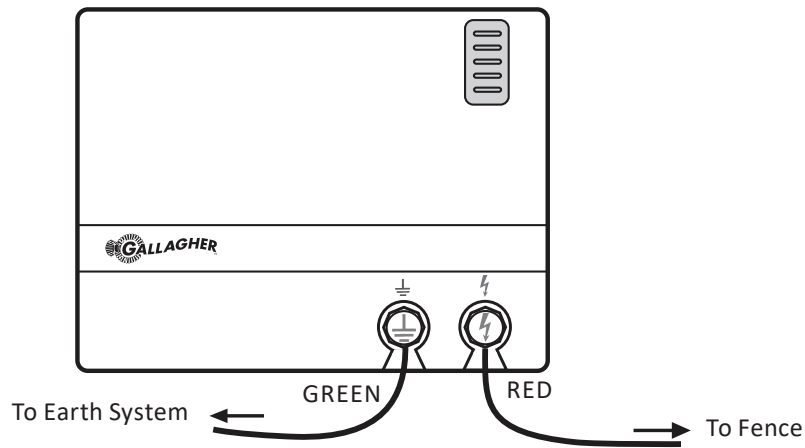
Buildings and gates for example, can become electrified with fence voltages if the energizer is improperly earthed.

Follow earthing instructions carefully.

- a) Install at least 3 x 2m (6ft) galvanised earth stakes into damp soil where possible. In dry conditions or in low mineral content soil more earth stakes may be required. Earth stakes must be at least 3m (10ft) apart and at least 10m (33ft) away from any mains cabling, telephone cabling, water pipes or building earth. Do not connect the earth terminal to any building metal work or framing.
- b) To attach the earth cable:
 1. Using Underground Cable (G627) remove 5cm (2") of plastic coating from one end of the cable wire and connect to the green ($\frac{1}{\text{E}}$) terminal on the energizer.
 2. Attach the cable to the earth system by removing 10cm (4") of insulation from the cable at each Earth Stake (G879) and then clamp the exposed wire to each stake using an Earth Clamp (G876).
 3. Tighten the clamp.

For further instructions on the earth (ground) system see the Gallagher Power Fence™ Manual.

Note: Poor grounding can cause interference on telephone lines, radios and televisions. This can be recognised by a clicking sound on telephones.

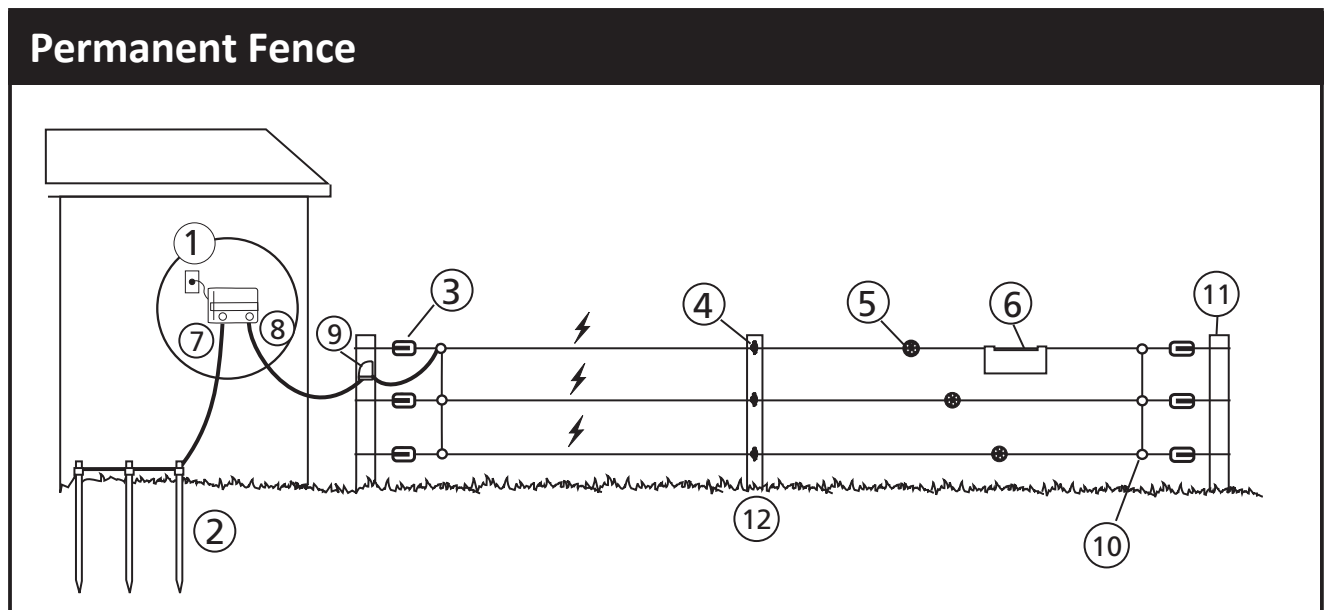


Step 3. Connect the fence

- a) Connect the energizer's red output (⚡) terminal to the fence using Underground Cable (G627). Remove 5cm (2") of plastic coating from one end of the cable. Unscrew the red (FENCE) terminal and insert the wire through the terminal slot. Screw the terminal closed, ensuring the wire is firmly clamped.
 - b) Attach the other end of the cable to the fence using a Joint Clamp (G603).
- For instructions on fence installation see the Gallagher Power Fence™ Manual or go to www.gallagher.com

Step 4. Turn the Energizer On

- a) Plug the energizer into a power outlet and switch ON.
- b) LED Indicators on the front of the energizer light up.



- | | | | | | |
|---|------------------|---|----------------|----|----------------|
| 1 | Energizer | 5 | Wire tightener | 9 | Cut out switch |
| 2 | Earth stake | 6 | Warning sign | 10 | Joint clamps |
| 3 | Strain insulator | 7 | Earth (Green) | 11 | Strain post |
| 4 | Post insulator | 8 | Live (Red) | 12 | Line post |

UNDERSTANDING YOUR ENERGIZER

Power Supply

220 -240 VAC. Internal protection against poor power supplies

LED Indicators

Indicates fence performance with each pulse



LED	Voltage
Green	> 7.5 kV
Green	> 6 kV
Yellow	> 4.5 kV
Yellow	> 3 kV
Red	> 0 kV

Earth Terminal

Connects to the earth system

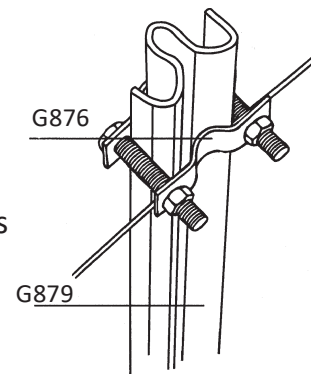
Fence Terminal

Connects to the fence wires

HANDY HINT

Find a location for your ground system that is permanently damp, has high fertility or salinity and is away from dairy sheds. Install the ground system at least 10m (33ft) from any power supply ground peg, underground telephone or power cable. The best construction is 2m (6ft) long galvanised stakes G879 or Super Ground Kits G880, 3m (10ft) apart, connected to the energizer by high quality Lead-out cable G627. Do not use materials that rust.

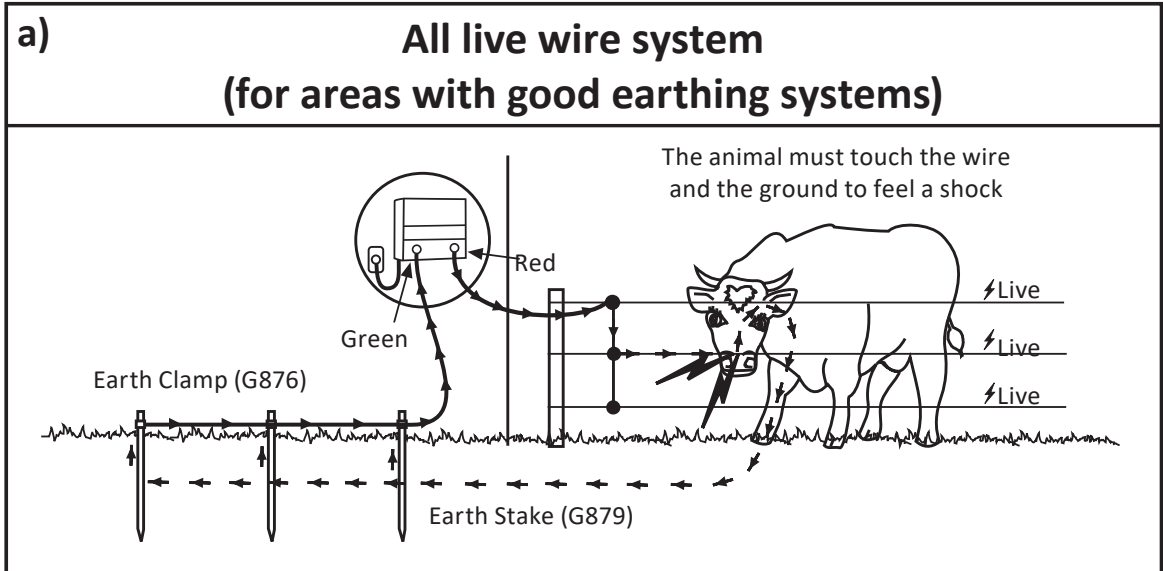
(Use G6272 if the ground system is over 100m (300ft) from the energizer).



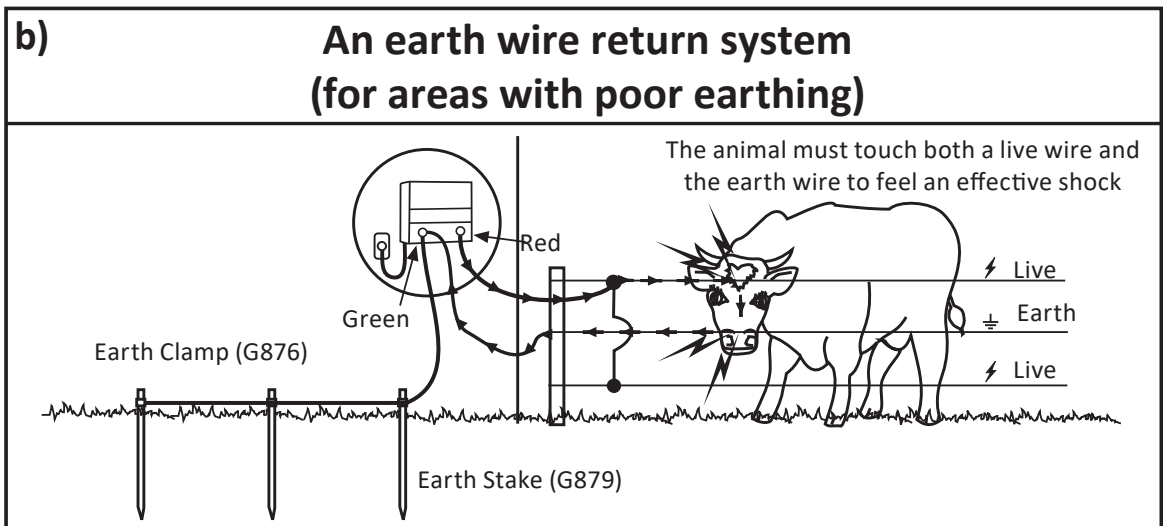
HOW TO INSTALL AN EARTH (GROUND) SYSTEM

Improperly earthed energizers can cause barns, gates etc to become hot. Follow earthing instructions carefully.

The most effective place for an earth system is in continuously damp soil (illustration a).



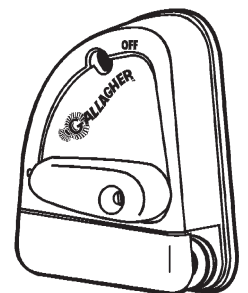
For dry areas with poor earthing conditions, install the fence using illustration b.



Earth stakes, at least 2m (6ft) long, should be spaced 3m (10ft) apart. Use a minimum of 3 earth stakes.

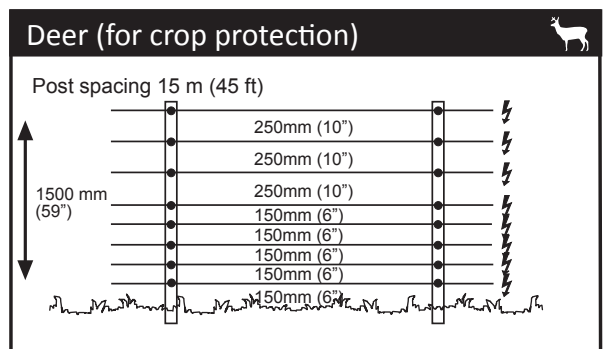
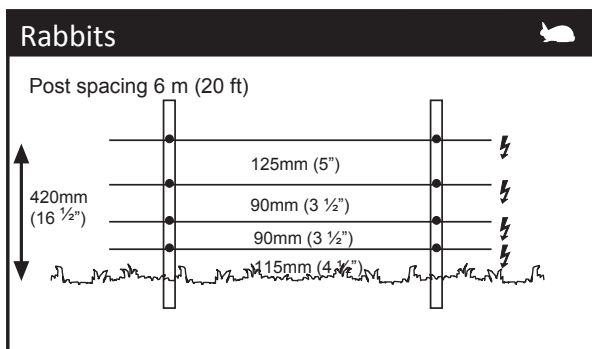
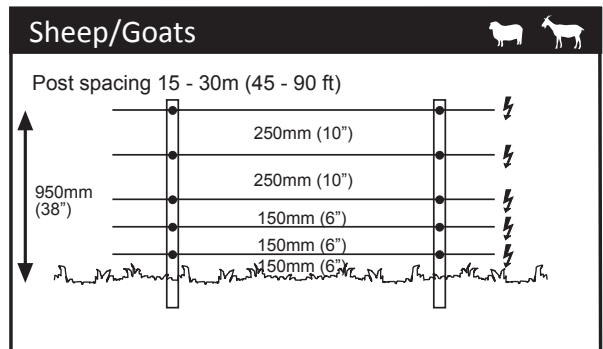
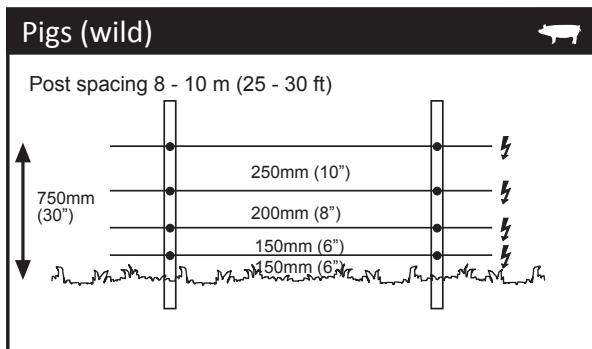
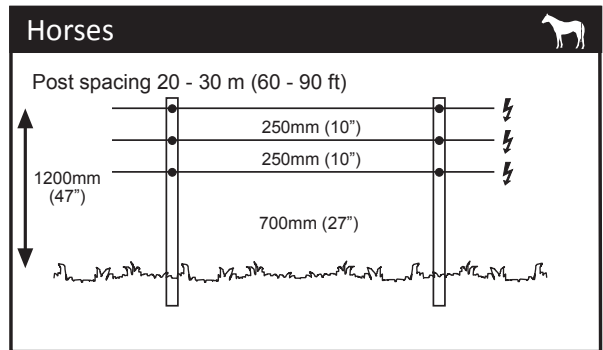
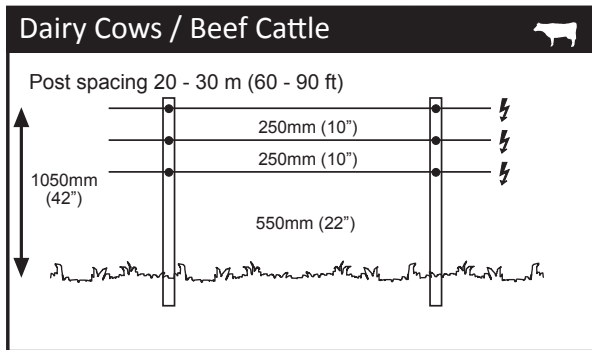
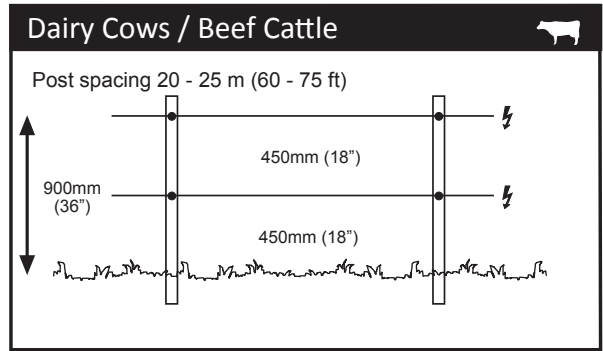
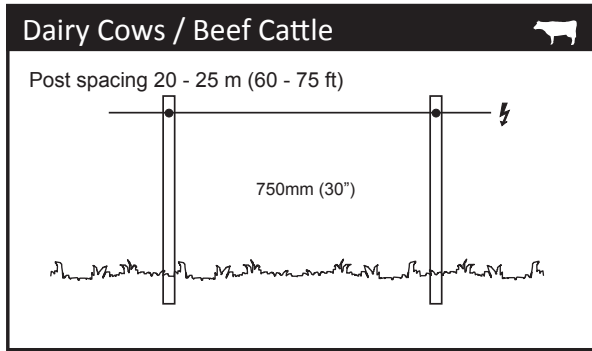
HANDY HINT

Use Cut-out Switches (G607) to allow sections of the fence system to be switched off during fence maintenance. Put a switch at each gateway and at every major change in fence direction.



OPTIONS FOR WIRE AND POST SPACINGS

These figures are guidelines only for flat country conditions.



For wire and post spacings in dry areas with poor earthing conditions, see your Gallagher dealer.

HANDY HINT

When joining wires under tension, use a figure eight or reef knot.

Do not use copper wire anywhere in your fence system.



PRODUCT SPECIFICATIONS

	M1400
Stored Energy:	14 J
Output Energy:	10.4 J
Output Voltage: (no load)	8.1 kV
Ingress	IPX4
Dimensions: HxWxD	212 mm x 268 mm x 95 mm
Weight:	2.8 kg

HANDY HINT

Fence Lead-out

Inadequate fence lead-out is often the reason for poor voltage on the fence. Particularly on either larger fence systems or fence systems heavily loaded with vegetation.

Lead-out is defined as the wire system that takes the power from the Energizer to the centre of the fence system - not just from the Energizer to the fence! Basically, the more wires connected in parallel, the better the voltage at the end of the fence.

If the centre of the fence system is more than 100m (300 ft) from the Energizer, at least 1 x 2.5mm wire is required. If the centre of the fence system is more than 1km (5/8 mile) from the Energizer, a minimum of 3 x 2.5mm wires or a single High Conductive 2.5mm "PowerWire" is required. Larger fence systems or heavily loaded fence systems with large Energizers may require more wires to adequately transfer the power from the Energizer onto the fence system.



TROUBLESHOOTING

Problem	Causes	Solution
Energizer has started to run slowly	The internal temperature of the energizer is too high	Mount the energizer in a cool area, out of direct sun and with adequate ventilation.
	Sudden load change on the fence.	Wait 10 minutes or restart Energizer.
Energizer doesn't operate	Energizer Off	Switch ON
	Break in supply circuit	Test power point
	Faulty energizer	Have energizer repaired
Electric fence voltage is below 3000V or your stock are escaping	Faulty energizer	Unplug the energizer from the power supply and remove the fence wire from the Red terminal. Plug energizer in again. Using a Digital Volt Meter (G503) check the voltage across the terminals. If the voltage is less than 5000V, have energizer repaired.
	Inadequate earthing	Improve the earth system by adding more galvanised earth stakes to the earth system until the earth voltage is 200V or below.
	Short on the fence line	Check the electrical connections are secure eg. from the fence to the red terminal, from the earth system to the green terminal, at gates etc. Check the voltage on the fence every 33m (100ft) using the Digital Volt Meter. Note if the voltage is dropping. The closer to a fault, the lower the voltage reading will be. Become aware of things that cause faults and always be on the lookout for: stray pieces of wire on the fence, heavy vegetation growth, cracked or broken insulators, broken wires.

Save these instructions.



M1400

Energizer Template

Instructions

1. Drill 2 x 4mm (5/32") holes (A & B).
2. Fix the screws provided into the wall leaving the head of the screw about 3mm (1/8") out from the wall.
3. Place the energizer over and slide down onto the mounting screws.



