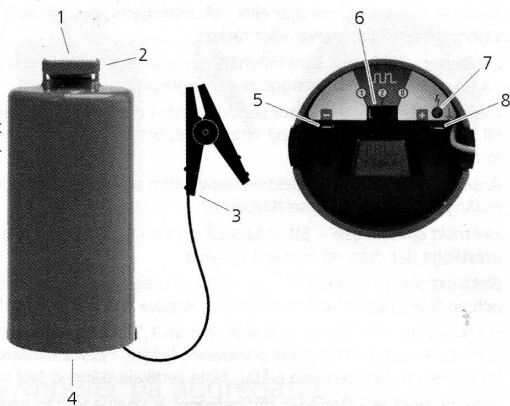


Warning! Read all instructions

## Parts of the energizer

- 1 Fence output terminal
- 2 Fence wire clip
- 3 Earth lead (green)
- 4 Battery compartment
- 5 Negative terminal for external battery
- 6 Selector switch
- 7 Pulse indicator light
- 8 Positive terminal for external battery



## Key to symbols on the energizer

The energizer should be opened or repaired only by qualified personnel in order to reduce the risk of electric shock.

Read full instructions before use.

Product Information: Please recycle this product in accordance with the regulations for your country.

### Warning!

- Do not connect to mains-operated (line-operated) equipment.
- Switch the energizer off before installation or performing any work on the fence.
- Read all the safety considerations carefully.
- Check your installation to ensure that it complies with all local safety regulations.
- Do not connect simultaneously to a fence and to any other device such as a cattle trainer or a poultry trainer. Otherwise, lightning striking your fence will be conducted to all other devices.

### Note:

- This product has been designed for use with electric animal fences.
- Keep this manual in a handy location.

## Batteries

### Recommended batteries

Energizer Model	Battery	Type	Quantity	Battery life expectancy*	
				(1) Slow	(2) Fast
AN45	D size, 1.5 V dry cell	Alkaline	4	84-105 days	63-84 days
AN90	D size, 1.5 V dry cell	Alkaline	4	28-35 days	21-28 days
or	12 V wet cell, lead-acid	Any	1	4-5 months	2-3 months

\* with energizer operating continuously.

Do not mix battery brands, type or age and always replace complete set with new batteries, all of the same brand.

Nickel Cadmium rechargeable batteries are not recommended as the energizer's pulse speed will be slower and operation between recharges may be as short as one week.

### Installing the batteries

**Warning!** Switch off the energizer before installing batteries.

#### Installing 1.5 V, dry cell batteries

**Caution:** To avoid damaging the energizer, remove the 1.5 V dry cell batteries as soon as they are discharged and when storing the energizer.

- 1 Release the two catches and remove the battery compartment.
- 2 Install the 1.5 V dry cell batteries, making sure the polarity is correct (positive to +, negative to -) as indicated on the battery compartment.
- 3 Refit the battery compartment. The battery compartment will only fit correctly one way to ensure correct operation.

#### AN90 - Installing a 12 V, wet cell, lead-acid battery

**Warning!** Ensure that the battery is disconnected from the energizer before connecting the battery to any mains-operated (line-operated) battery charging device. Failure to observe this precaution could result in damage to the energizer and possible electrocution.

**Caution:** To avoid damaging the energizer, remove the 1.5 V, dry cell batteries before installing a 12 V, wet-cell lead acid battery.

- Connect the energizer to the 12 V, wet cell, lead-acid battery using the battery leads supplied. Connect the red, positive (+) lead to the positive terminal on the underside of the energizer. Connect the clip to the positive terminal of the battery. Connect the black negative (-) lead to the negative terminal on the underside of the

## Installation

Read all of the safety instructions in this manual carefully before installing the energizer.

### Mounting the energizer and connecting to an electric fence

Attach the energizer directly to the fence wire using the fence wire clip. Try to position the energizer as near as possible to the centre of the electric fence.

Connect the green earth lead to a portable earth rod. This can be a metal, tread-in electric fence post.

Ensure that the energizer, battery, earth rods and all connections are protected from interference by animals.

#### AN90

**Caution!** If a 12 V, wet cell, lead-acid battery is being used to power the energizer, ensure that the battery is at least 1 m (3') away from and not directly below the energizer to avoid possible damage to the energizer.

Connect the energizer Fence output terminal to the fence using the yellow lead supplied.

## Operation

- Select the pulse speed setting using the Selector switch.  
The pulse indicator light flashes each time the energizer pulses. An excessively slow pulse speed indicates that batteries are low.

Setting	Pulse speed
(1) Slow	Approximately 2 seconds between pulses
(2) Fast	Approximately 1¼ seconds between pulses

**Tip:** Use (2) Fast for training animals that have not experienced electric fences before. Use (1) Slow for normal operation to conserve battery power.

## Building an electric fence

For information about building an electric fence, refer to the Tru-Test website [www.tru-test.com](http://www.tru-test.com).

## Safe electric fence construction

**Warning!** Read before use.

An electric fence can be hazardous when there is a risk of entrapment or entanglement, or other hazards exist. Serious injury or death may result. Take all steps to avoid the risk of entrapment or entanglement. This safety information should be read in conjunction with *Requirements for electric animal fences*.

### Hazards

- Do not climb through or under an electric fence. If it is necessary to cross an electric fence use a gate or specially designed crossing point.
- Do not allow young or infirm persons to use this energizer without supervision. Do not allow young children to play with this energizer or near an electric fence or electrified wires.
- Do not electrify barbed wire.
- Do not support off-set electrified wires less than 150 mm (6") from a barbed wire fence.
- Do not electrify any fence construction which could lead to entanglement of persons or animals. We recommend for instance, that no more than one electrified off-set wire be supported on either side of a barbed wire or mesh fence.
- Do not supply an electric fence from two energizers.
- Do not allow electrified wires from two energizers on the same or adjacent properties to be less than 2 m (6'6") apart.
- Do not place energizer earth electrodes within 10 m (33') of any part of a power supply earth system or telecommunications earth system.
- Do not run electric fence wires above or close to overhead power or communication lines.

### Duty to the public

Fasten warning signs to electric fence posts or wires at frequent intervals along any public roads or pathways. Incorporate a non-electrified gate or stile where an electric animal fence crosses a public pathway and fasten warning signs to fence posts or wires adjacent to the crossing.

For more information, contact Tru-Test or your local Tru-Test dealer. Refer to [www.tru-test.com](http://www.tru-test.com) for contact details.

# Safety considerations

## Definition of special terms

*Energizer* – An appliance that is intended to periodically deliver voltage impulses to a fence connected to it.

*Fence* – A barrier for animals or for the purpose of security, comprising one or more conductors such as metal wires, rods or rails.

*Electric fence* – A barrier which includes one or more electric conductors, insulated from earth, to which electric pulses are applied by an energizer.

*Fence circuit* – All conductive parts or components within an energizer that are connected or are intended to be connected, galvanically, to the output terminals.

*Earth electrode* – Metal structure that is driven into the ground near an energizer and connected electrically to the Fence earth terminal of the energizer, and that is independent of other earthing arrangements.

*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 security fence* – A fence used for security purposes which comprises an electric fence and a physical barrier electrically isolated from the electric fence.

*Physical barrier* – A barrier not less than 1.5 m (5') high intended to prevent inadvertent contact with the pulsed conductors of the electric fence. Physical barriers are typically constructed from vertical sheeting, rigid vertical bars, rigid mesh, rods or chainwire mesh.

*Public access area* – Any area where persons are protected from inadvertent contact with pulsed conductors by a physical barrier.

*Pulsed conductors* – Conductors which are subjected to high voltage pulses by the energizer.

*Secure area* – The side of an electric security fence where a person may come into contact with the electric fence, without the protection of a physical barrier.

## Requirements for electric animal fences

Electric animal fences and their ancillary equipment shall be installed, operated and maintained in a manner that minimises danger to persons, animals or their surroundings.

This energizer is not intended for use by young children or infirm persons unless they have been adequately supervised by a responsible person to ensure that they can use the energizer safely.

Young children should be supervised to ensure that they do not play with the energizer.

Electric animal fence constructions that are likely to lead to the entanglement of animals or persons shall be avoided.

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 m (6'6"). 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 offset 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 (6") from the vertical plane of the non-electrified wires. The barbed wire and razor wire shall be earthed at regular intervals.

Follow our recommendations regarding earthing.

A distance of at least 10 m (33') 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.

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 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 vehicle 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 below.

*Minimum clearances from power lines for electric animal fences*

Power line voltage	Clearance
≤1000 V	3 m (10')
>1000 V to ≤33,000 V	4 m (13')
>33,000 V	8 m (27')

If connecting leads and electric animal fence wires are installed near an overhead

applies to either side of the orthogonal projection of the outermost conductors of the power line on the ground surface, for a distance of:

- 2 m (6'6") for power lines operating at a nominal voltage not exceeding 1000 V.
- 15 m (50') for power lines operating at a nominal voltage exceeding 1000 V.

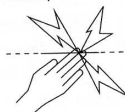
Electric animal fences intended for deterring birds, household pet containment or training animals such as cows need only be supplied from low output energizers to obtain satisfactory and safe performance.

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.

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 at frequent intervals by warning signs securely fastened to the fence posts or firmly clamped to the fence wires.

- The size of the warning sign shall be at least 100x200 mm (4x8").
- 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:



or the substance of "CAUTION: Electric animal fence".

- The inscription shall be indelible, inscribed on both sides of the warning sign and have a height of at least 25 mm (1").

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.

## Servicing

This energizer contains no user serviceable parts. It must be returned to a Tru-Test-appointed service agent for repair.

## Product specifications

	AN45	AN90
Power Supply	6 V/12 V	6 V/12 V
Current Consumption	6 mA - (1) slow 10 mA - (2) fast	15 mA - (1) slow 27 mA - (2) fast
Maximum Output Voltage	7 kV	8 kV
Maximum Output Energy	0.04 J at 5 kΩ	0.12 J at 1 kΩ
Stored Energy	0.05 J	0.15 J
Dimensions WxHxD	105x265x100 mm (4 1/4 x 10 1/2 x 4")	105x265x100 mm (4 1/4 x 10 1/2 x 4")
Weight	0.6 kg (1 lb, 5 oz)	0.6 kg (1 lb, 5 oz)

## Warranty

This product is warranted against faulty material and workmanship for a period from the date of purchase. If a warranted defect occurs, return this product with proof of purchase to the place of purchase. Details of warranty periods and other terms applying are available at the place of purchase or at [www.tru-test.com](http://www.tru-test.com).

### Note:

- No responsibility is accepted for any accident or damage caused subsequent to any tampering with or modification to or misuse of this product, including (but not limited to) alterations made by anyone other than Tru-Test or its agents.
- To the maximum extent permitted by law, this warranty is exclusive, personal to you and in lieu of all other warranties, representations or conditions relating to this product (whether express or implied and whenever arising) whether originating by statute, law, trade, custom or otherwise.