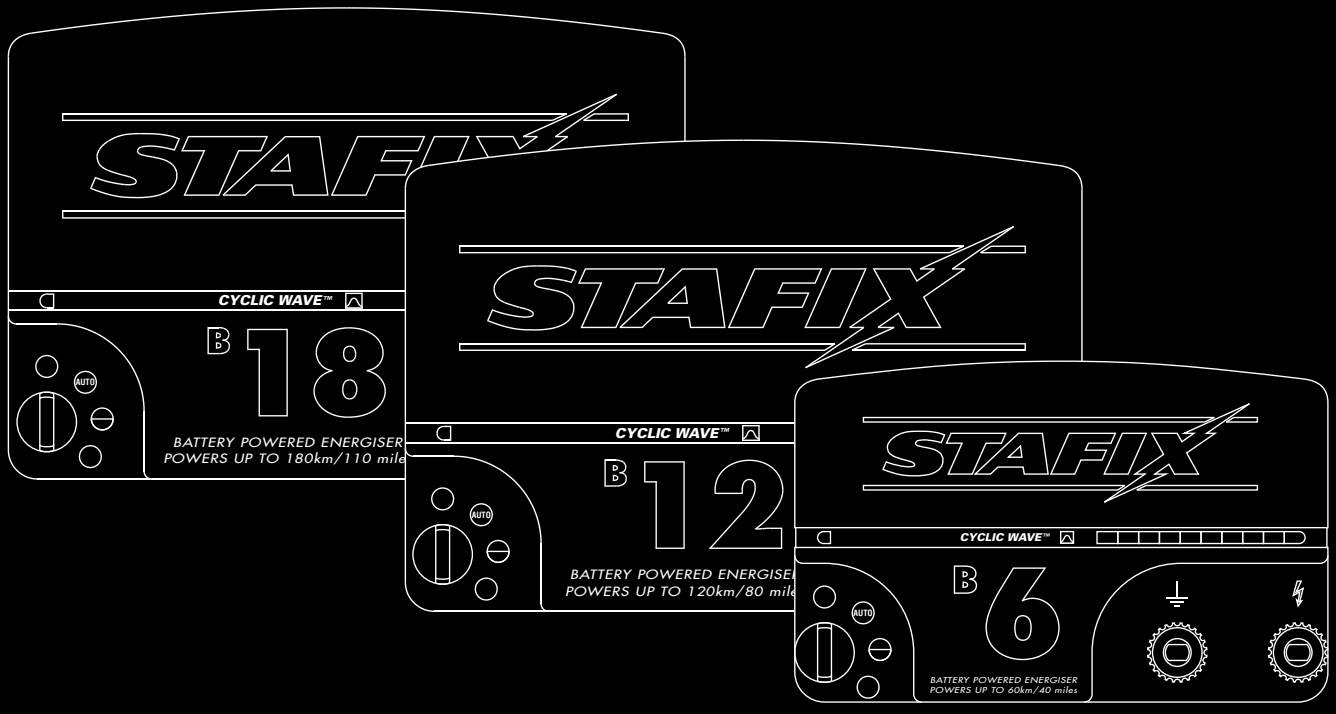
STAFIX®

Instruction Manual

B6/B12/B18



CYCLIC WAVE

innovation
technology
performance
power

Contents

For more information about the Stafix range of quality products, see www.stafix.com.

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ENGLISH

Electric Fencing and your Stafix Energiser

Congratulations on your purchase of a Stafix battery energiser. This product has been constructed using the latest technology and construction techniques. It has been engineered to give superior performance and many years of service.

It is important to carefully and thoroughly read these instructions. They contain important safety information and will assist you in ensuring that your electric fencing system gives maximum performance and reliability.

Explanation of symbols that may be on your energiser

Indicates that, to reduce the risk of electric shock, the energiser should be opened or repaired only by qualified Stafix-appointed personnel.

Read full instructions before use.

How does an electric fence work?

An electric fence system comprises an energiser and an insulated fence. The energiser puts very short pulses of electricity onto the fence line. These pulses have a high voltage, but are of very short duration (less than 3/10,000ths of a second). However, a shock from an electric fence pulse is very uncomfortable and animals quickly learn to respect electric fences. An electric fence is not only a physical barrier, but is also a strong psychological barrier.

What are the benefits of an electric fence?

An electric fence has many benefits over conventional fencing:

- Requires less labour and material to construct than conventional fencing.
- Flexibility to change or add paddocks when required. The use of strip grazing techniques can allow temporary fencing to be quickly and easily erected or removed.
- Controls a broader range of animals.
- Minimises damage to expensive livestock when compared with other fencing mechanisms, for example barbed wire.

Installation

Read all of the safety instructions in this manual carefully before installing the battery energiser. There are three types of installation:

- Battery-only installation
- Solar installation
- Battery maintained installation

Battery-only installation

Installing the energiser outside

Warning! Before installing the energiser, ensure the energiser is switched off.

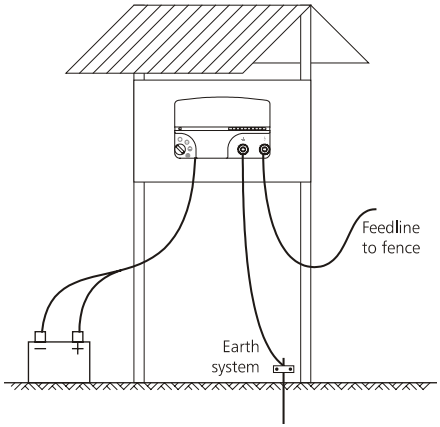
1 Select a suitable site for the energiser.
Ensure that the energiser is protected from animals and the environment. If necessary, house the energiser in a protective box. Consider site access, proximity to a suitable area for earthing and whether the energiser is safe from human interference. Try to position the energiser as near as possible to the centre of the electric fence. To avoid possible damage to the energiser, ensure that the battery is at least 1 m (3') away from and not directly below the energiser.

2 Mount the energiser on a post. Use the template printed inside the back cover of this manual.

3 Connect the energiser fence Earth terminal (green) to the earthing system.

4 Connect the energiser Fence output terminal (red) to the fence.

5 Attach the red (+) energiser clip to the positive terminal of the battery, and the black (–) clip to its negative terminal. For permanent installations, use wire to connect the energiser to the battery.



Installing the energiser inside

Warning! Before installing the energiser, ensure the energiser is switched off.

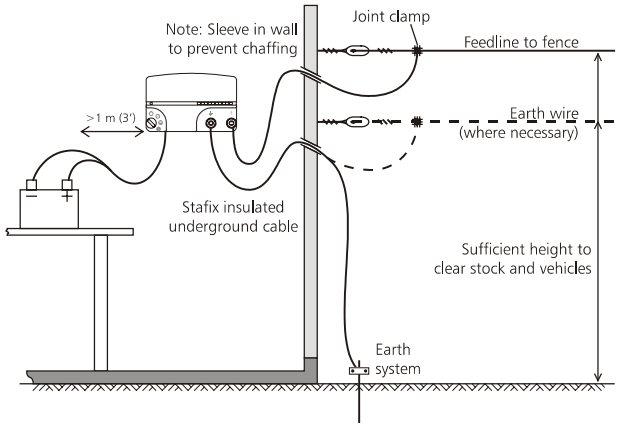
1 Select a suitable place for the energiser.
Ensure that the energiser and battery are out of reach of children. The battery must be level. To avoid possible damage to the energiser, ensure that the battery is at least 1 m (3') away from and not directly below the energiser.

2 Mount the energiser on a wall. Use the template printed inside the back cover of this manual.

3 Connect the energiser fence Earth terminal (green) to the earthing system.

4 Connect the energiser Fence output terminal (red) to the fence.

5 Attach the red (+) energiser clip to the positive terminal of the battery, and the black (–) clip to its negative terminal. For permanent installations, use wire to connect the energiser to the battery.



Solar installation

Solar panel selection, assembly and positioning

Refer to the *"Stafix Solar Selection Guide"* for information about selecting components, assembling and positioning a solar energiser system.

Battery maintained installation

This energiser has been designed to operate safely with a battery charger power pack.

A battery maintained installation allows the energiser to draw its normal operating power through a battery charger power pack connected to a mains/line power source. This enables the energiser to continue operating from a battery supply during a power outage. A battery maintained installation is normally indoors.

A battery maintained installation is recommended where stock control is critical, for example for controlling game, high value stock, diseased stock or where a fence line borders a public highway. A suitable battery charger power pack can be purchased from your nearest Stafix stockist.

Warning! A rechargeable 12 V, lead-acid battery must be used with a battery maintained installation.

Installing the energiser with a battery charger power pack

Warning! Before installing the energiser, ensure the energiser is switched off.

1 Select a suitable place indoors for the energiser and battery charger power pack.

Ensure that the energiser, battery and battery charger power pack are out of reach of children. The battery charger power pack should be mounted close to a power outlet. The battery must be level. To avoid possible damage to the energiser ensure that the battery is at least 1 m (3′) away from and not directly below the energiser.

Warning! Ensure there is adequate ventilation to allow gases to disperse from the battery.

2 Mount the energiser on a wall. Use the template printed inside the back cover of this manual.

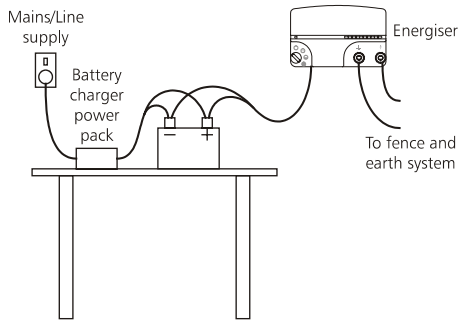
3 Connect the energiser fence Earth terminal (green) to the earthing system.

4 Connect the energiser Fence output terminal (red) to the fence.

5 Attach the red (+) energiser clip to the positive terminal of the battery, and the black (–) clip to its negative terminal. For permanent installations, use wire to connect the energiser to the battery.

6 Connect the battery to the battery charger power pack.

7 Connect the battery charger power pack to the mains/line power.



Operation

- Keep this manual in a handy location.
- Carefully read all the safety considerations in this manual. See *Safety Considerations* on page 8.
- Carefully check your installation to ensure that it complies with all local safety regulations.

1 Ensure the Selector switch is set to Off. The Power light is illuminated when the energiser is receiving power.

2 Select the output setting using the Selector switch. See *Selector Switch* on page 3.

The LED display indicates the output voltage of the energiser. See *LED display* on page 4.

Selector Switch

The energiser functions according to the position of the Selector switch. The Selector switch controls the power output setting of the energiser.

Setting		Description
○	Off	Turns the energiser off. Keep the energiser off while setting up your fence line to avoid accidental shock.
AUTO	Auto	The energiser automatically adjusts power output as the fence load increases or decreases.
◒	Half	Overrides the automatic adjustment and keeps the energiser in reduced-power mode permanently.
●	Full	Overrides the automatic adjustment and keeps the energiser in full-power mode permanently.

LED display

You can use the LED display to read voltage at the output terminals of the energiser.

Reading voltage

When the energiser pulses, each of the first nine segments on the LED display represents an increment of approximately 1 kV (1000 V) of output voltage. For example, if the first four segments are illuminated at each pulse, the output voltage is approximately 4 kV (4000 V).

If you see only red lights at each pulse and no green lights, this means that your fence line is very heavily loaded, and you need to look for faults on the fence line.

The tenth segment of the LED display illuminates when the energiser is delivering full power.

Battery Selection and Management

This section refers exclusively to re-chargeable, lead-acid batteries, for example car, tractor, truck, marine or specialist deep-cycle batteries.

The battery you select will depend on whether your installation is a battery-only, battery maintained or a solar installation. For all three types of installation, the position of the energiser Selector switch will determine the size of battery required. Refer to *Operation* on page 3 for an explanation of the function of the Selector switch.

Battery selection for a battery-only installation

As a guide, the amp hour (Ah) rating of the 12 V lead-acid battery required for each model is shown below. This table is based on a seven day operating period between battery charging. Although operating time can exceed seven days, this is likely to cause battery damage and will necessitate frequent replacement of the battery. For best system reliability and long term battery life, the preferred battery and charging regime is to use a deep-cycle, lead-acid battery and to recharge it when it has discharged to 50% charge level.

Energiser	Selector Switch Positions	Current Required	Battery Capacity (90% Discharge)
B6	Full Power	0.85 A	150 Ah
	Half Power	0.35 A	65 Ah
B12	Full Power	1.7 A	320 Ah
	Half Power	0.75 A	140 Ah
B18	Full Power	2.1 A	400 Ah
	Half Power	1.1 A	210 Ah

Battery selection for a solar installation

The battery and solar panel must be selected carefully to suit the energiser's electrical current consumption. This will depend on the position of the energiser Selector switch, the energiser model being used and the amount of sunshine at the location of the installation.

As a guide, the minimum amp hour (Ah) rating of the 12 V lead-acid battery required for each model is shown below. This table is based on average usage over seven days with no sunlight. It takes into account the variety of solar panel and regulator types that could be used in a solar installation. For more detailed information, refer to the *"Stafix Solar Selection Guide"*.

Energiser Model	Selector Switch Position	Current Required	Recommended Battery Capacity (50% Discharge)
B6	Full Power Half Power	0.85 A 0.35 A	270 Ah 120 Ah
B12	Full Power Half Power	1.7 A 0.75 A	600 Ah 250 Ah
B18	Full Power Half Power	2.1 A 1.1 A	700 Ah 370 Ah

Battery selection for a battery maintained installation

Warning! A rechargeable 12 V lead-acid battery must be used for a battery maintained installation.

The battery selected for a battery maintained installation must be able to supply the energiser's current requirements for the duration of a mains/power outage. For maximum reliability, the battery should not be discharged below a 50% charge level. The table below is based on a 12 hour power outage.

The battery charger power pack should be able to supply the energiser's current requirements and recharge the battery in an acceptable time. The recharge times shown in the table are for the Stafix 2 A (FSTPP2A) and 4 A (FSTPP4A) battery charger power packs.

Energiser Model	Selector Switch Position	Current Required	Minimum Battery Capacity	Recharging Time (after 12 hours)	Battery Charger Power Pack
B6	Full Power Half Power	0.85 A 0.35 A	20 Ah 9 Ah	11 hours 4 hours	2 A
B12	Full Power Half Power	1.7 A 0.75 A	41 Ah 18 Ah	12 hours 4 hours	4 A
B18	Full Power Half Power	2.1 A 1.1 A	51 Ah 27 Ah	17 hours 6 hours	4 A

Battery management

Battery charging

A battery-only installation has unique requirements. Regular recharging of the battery is essential. Use a suitably-rated battery charger to recharge the battery. Refer to the battery manufacturer's recommendations.

1 Disconnect the battery from the energiser.
2 Attach the positive (+) battery charger lead to the positive terminal of the battery, and the negative (–) battery charger lead to the negative terminal on the battery.
3 Plug the battery charger into the mains/line power supply socket and turn the power on.
4 After the battery is charged, disconnect it from the battery charger before connecting it to the energiser.

Caution! Over-charging the battery will reduce its life. Do not exceed the recommendations of the battery manufacturer when recharging the battery.

Correctly installed solar energiser systems and battery maintained installations require very little battery maintenance. The solar panel or battery charger power pack should be sufficient to maintain the battery at full or near-full charge.

Warning! Batteries contain harmful chemicals and when used incorrectly, may cause injury. Observe the guidelines for battery care, maintenance and safety in this manual and in the documentation supplied with your battery.

Battery care and maintenance

- House the battery in a suitably designed battery box, if the battery is likely to be exposed to the weather.
- When not in use, keep the battery as fully charged as possible.
- Recharge a discharged battery as soon as possible.
- Batteries should be stored fully charged and recharged at regular intervals (every 8 weeks)
- Inspect the battery regularly to ensure that the electrolyte level does not fall below 12 mm (½") above the surface of the battery plates.
- Fill using deionised, distilled or rain water. Do not overfill. Refer to the battery manufacturer's recommendations for more information.

Battery safety

- Ensure that the battery is well ventilated when recharging.
- Avoid temperatures greater than 50 °C (120 °F).
- Ensure the battery is not exposed to naked flame or sparks.

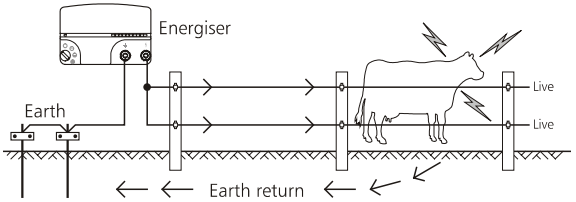
Building a Permanent Electric Fence

Components of an electric fence

An electric fence system comprises the following elements:

- *An energiser.*
- *An earth system.* This comprises a number of metal rods inserted into the ground, which are connected to the Earth terminal on the energiser.
- *Stafix insulated underground cables.* Used to connect the energiser to the earth and fence.
- *An insulated fence.* Connected to the Fence terminal of the energiser. Fences can be made to a variety of designs (see below).

Note: The animal receives a shock when it completes a circuit between the fence and the earth system. The fence below has all live wires and requires conductive soils. These fences are often referred to as 'all-live' or 'earth-return' fences.



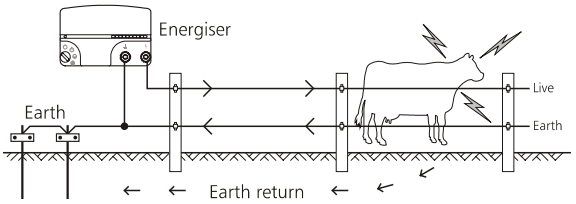
Other useful components that can be added:

Cut-out switches. Installed at regular intervals, these allow you to isolate sections of the fence for repair.

Lightning diverter kit. Used to minimise the damage to your energiser from lightning conducted down the fence line.

Alternative installation

For poor conductivity soils (dry or sandy), a 'fence-return' or 'earth-wire-return' system is recommended. On these fences the Earth terminal is connected directly to at least one of the fence wires. The animal gets maximum shock from touching a live and earth wire at the same time.

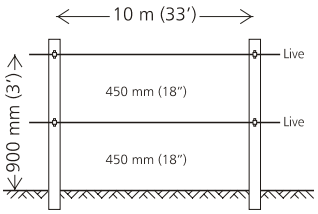


Fence designs

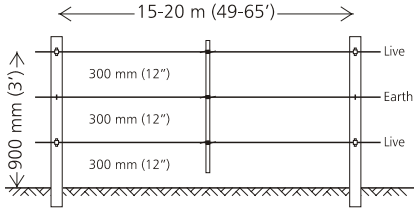
Fences can be constructed to suit the type of livestock and materials available. Discuss with your Stafix distributor which design best suits your needs. Some suggested fence configurations are below.

Cattle and horses

10-15 m (33-49') spacing, posts only

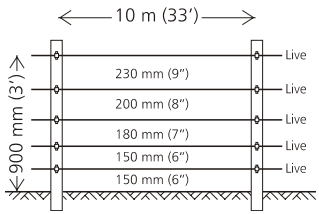


15-20 m (49-65′) spacing with droppers

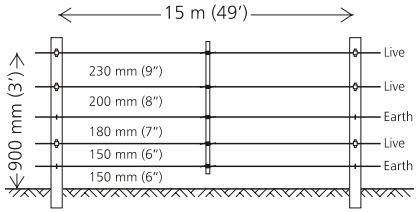


Sheep, goats, cattle and horses

10 m (33′) spacing, posts only

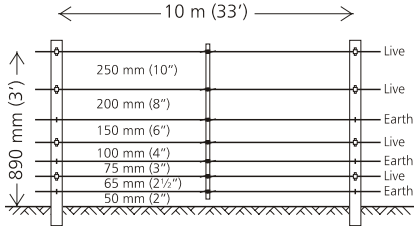


15 m (49′) spacing with droppers



Wild animals

7 wire, 10 m (33′) spacing with droppers



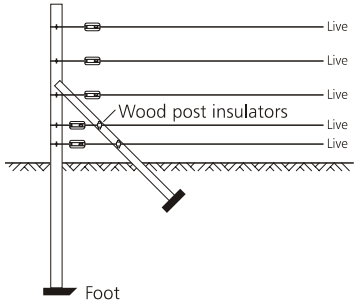
End assemblies

Angle stay

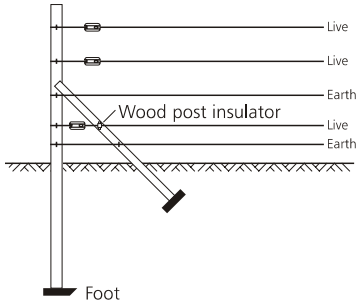
Suitable for field gate, high-tension strainer.

After firmly setting the footed strainer in the ground, dig in the stay block just below ground level, at a distance to ensure the angle stay will be held snugly in position. The stay can be levered into position with a spade.

All-live system



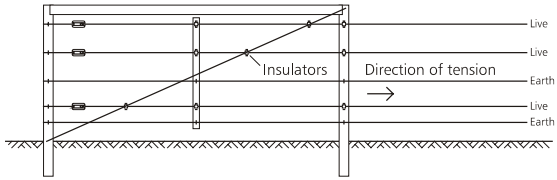
Earth-return system



Horizontal stay

Suitable for field gate, high-tension strainer.

Very simple to erect and most suitable as a high tension strainer, excellent in areas where the soil gets very wet or where heavy frost occurs.



Installing and testing an earth system

Select a suitable site for the earth system. Sites need to be:

- At least 10 m (33′) from other earth systems (e.g. telephone, mains power or the earth system from another energiser).
- Away from stock or other traffic that could interfere with the installation.

- At a site that can be easily observed for maintenance.
- Ideally at a site that has damp soil (e.g. a shaded or swampy location). Note that the earth does not need to be directly adjacent to the energiser installation.

Drive Stafix earth rods into the ground. Use high-voltage, insulated cable and earth clamps to continuously connect the earth rods and the energiser's Earth terminal. Make sure the insulation is stripped back to ensure good contact between the wire and the earth rod.

The number of earth rods used will vary with the soil conditions. For larger energisers, at least six 2 m (6'6") earth rods are required. To ensure that an adequate number of earth rods have been used, test the earth system using the following procedure:

1 Turn off the energiser.

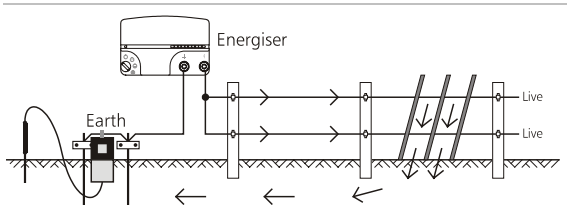
2 At least 100 m (330') away from the energiser, short circuit the fence by laying several steel rods or lengths of pipe against the fence. For best results, the fence voltage should be lowered to 2000 V or less. In dry or sandy conditions, it may be necessary to drive the rods up to 300 mm (1') into the earth.
Note: It is not acceptable to short circuit a fence return system to the earth wire of the fence.

3 Turn the energiser back on.

4 Using a Stafix Digital Voltmeter, ensure that the fence voltage is below 2 kV.

5 *Check your earth system.* Insert the voltmeter's earth probe into the ground at the full extent of the lead, and hold the hook against the last earth rod. The tester should not read more than 0.3 kV. Anything higher than this indicates that better earthing is required. Either add more earth rods or find a better ground area to drive in the earth rods.

Note: When earthing energisers located in dairies, earth at least 20 m (65') away from the dairy using double insulated wire to avoid touching the dairy building or equipment.



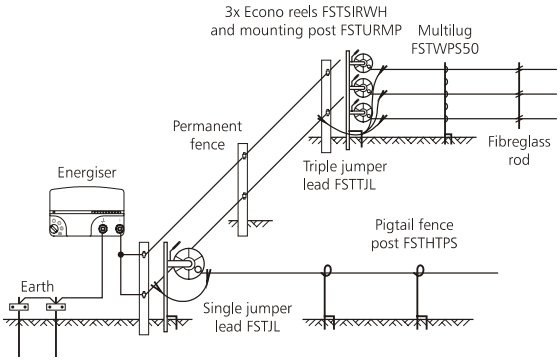
Temporary Electric Fencing

Stafix offers a range of products that allow the farmer to construct a temporary electric fence. A temporary fence that can be quickly erected and easily moved allows the farmer to:

- Make smaller paddocks (fields)
- Keep herds of animals separated
- Ration feed

Note: Use more wires for smaller animals and wild animals. Politape should be used when greater visibility is required (e.g. horses).

An example of a temporary fence is shown below.



Safety Considerations

Definition of special terms

Electric fence energiser – 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 energiser.

Fence circuit – All conductive parts or components within an energiser 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 energiser and connected electrically to the output Earth terminal of the

energiser, and that is independent of other earthing arrangements.

Connecting lead – An electric conductor, used to connect the energiser 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 energiser.

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.

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 energisers or from independent fence circuits of the same energiser.

For any two separate electric animal fences, each supplied from a separate energiser 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 energiser.

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. See *Installing and testing an earth system* on page 7.

A distance of at least 10 m (33′) shall be maintained between the energiser 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 ≤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 power line, their height above the ground shall not exceed 3 m (10'). This height 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.

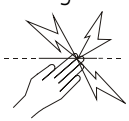
Electric animal fences intended for deterring birds, household pet containment or training animals such as cows need only be supplied from low output energisers to obtain satisfactory and safe performance.

In electric animal fences intended for deterring birds from roosting on buildings, no electric fence wire shall be connected to the energiser 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 energiser.

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.

Requirements for electric security fences

Electric security fences and their ancillary equipment shall be installed, operated and maintained in a manner that minimises danger to persons, and reduces the risk of persons receiving an electric shock unless they attempt to penetrate the physical barrier, or are in the secure area without authority.

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

Gates in electric security fences shall be capable of being opened without the person receiving an electric shock.

An electric security fence shall not be supplied from two separate energisers or from independent fence circuits of the same energiser.

For any two separate electric security fences, each supplied from a separate energiser independently timed, the distance between the wires of the two electric security fences shall be at least 2.5 m (9'). 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 energiser.

Follow our recommendations regarding earthing. See *Installing and testing an earth system* on page 7.

The distance between any electric security fence earth electrode and other earth systems shall not be less than 2 m (6'6"), except when associated with a graded earth mat.
Note: Where possible this distance should be at least 10 m (33').

Exposed conductive parts of the physical barrier shall be effectively earthed.

Where an electric security fence passes below bare power line conductors, the highest metallic element shall be effectively earthed for a distance of not less than 5 m (17') on either side of the crossing point.

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 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 security 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 security fence wires are installed near an overhead power line, the clearances shall not be less than those shown in the table on page 9.

If connecting leads and electric security fence wires are installed near an overhead power line, their height above the ground shall not exceed 3 m (10'). This height 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.

A spacing of 2.5 m (9') shall be maintained between uninsulated electric security fence conductors or uninsulated connecting leads supplied from separate energisers. This spacing may be less where conductors or connecting leads are covered by insulating sleeving, or consist of insulated cables rated to at least 10 kV.

This requirement need not apply where the separately energized conductors are separated by a physical barrier that does not have any openings greater than 50 mm (2").

A vertical separation of not less than 2 m (6'6") shall be maintained between pulsed conductors fed from separate energisers.

Electric security fences shall be identified by prominently placed warning signs.

The warning signs shall be legible from the secure area and the public access area.

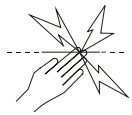
Each side of the electric security fence shall have at least one warning sign.

Warning signs shall be placed:

- at each gate
- at each access point
- at intervals not exceeding 10 m (33')
- adjacent to each sign relating to chemical hazards for the information of the emergency services

Any part of an electric security 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 100×200 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 security 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 security fence circuit provides a degree of isolation between the fence circuit and the supply mains equivalent to that provided by the energiser.

Mains supply wiring shall not be installed in the same conduit as signalling leads associated with the electric security fence installation.

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.