

### **PART 1: Warning** **SAFE ELECTRIC ANIMAL FENCES**

Please read before operating an electric fence

The installation and operation of an electric fence needs to be conducted in a manner that causes no electrical hazard to persons, animals or surroundings.

**For safe application please adhere to the following points**

Use only as much power (joules) as is necessary for your application. Short fences of up to 10km without vegetation contact can be operated with 0.2 to 0.5 joule pulse energy. Medium fences of up to 20km with light vegetation should operate effectively with a maximum of 2-3 joule pulse energy.

Low output energisers (or low output settings where available) should be used where unsupervised children may come into contact with the fence, in and around residential areas and when operating alternate polarity or positive/negative fence systems where multi fence lines are connected 'live/earth'.

Avoid direct, bodily contact with the electric fence with extra precaution taken with head, neck and torso (trunk) areas.

- **Avoid alternating polarity (positive/negative, live/earth) fence where persons can position themselves between wires with opposing polarity. Where possible use energisers below 0.5 joules and install a non-electrified earthed wire.**
- Allow persons to pass through areas of public access by means of insulated gates, gate handles and insulated stiles. Where an electric fence crosses or runs along a public right of way clearly identify electric wires with warning signs spaced not more than 100m apart.
- Ensure the electric fence is installed 2.5m from metallic equipment and services (i.e waterpipes/troughs) especially when contact with people is likely.
- The energiser must be turned off if there is a danger of flooding.

**Please read annex BB1.**

Most energisers are designed with a pulse interval of 1- 1.5 seconds. This is to ensure a safe retreat from the fence following a shock. If the pulse interval drops below 1 second or above 1.5 seconds the fence is unsafe and the energiser must be returned for repair.

Our energisers comply with the European Standard EN 60335-2-76 and do not cause radio or TV interference. Our energisers also comply with European Directive (EMC) 89/336/EEC and are printed with the CE mark.

Avoid misuse of the energiser by observing information printed on the unit and if possible by securing the energiser against unauthorized access .

Specialised applications such as in zoos, for deer, wildlife conservation or in a security context, where risk from public exposure is likely, the installation should be undertaken by trained specialists and a conventional, electrically isolated barrier should be erected separating the public from the electric fence.

### **Part 2: Principle**

An electric fence uses high voltage, low energy pulses to deliver a shock and provide an ongoing psychological barrier which animals are reluctant to cross. This can be used to train animals or to keep them from entering or escaping from fenced areas.

### **ANNEX BB.1** **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 2,5 m. 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 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.

**Observe the BOLD text !**

Follow the energizer manufacturer's recommendations regarding earthing.

A distance of at least 10 m shall be maintained between the **energiser earth electrode** and any other with the 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 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 Table BB1.

**Table BB 1 - Minimum clearances from power lines for electrical animal fences**

Power line voltage ( V )	Clearance ( m )
≤ 1000	3
> 1000 and ≤ 33000	4
> 33000	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 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 for power lines operating at a nominal voltage not exceeding 1000 V;
- 15 m 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 **electrical animal fences** intended for deterring birds from roosting on buildings no fence wire shall be grounded if the fence wires are not connected to metal parts. If one wire is connected with a metal part ( i.e. a gutter) or a metal structure of the building these metal parts must be grounded.

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 100 mm × 200 mm.

The background colour of both sides of the warning sign shall be yellow. The inscription on the sign shall be black and shall be either

- the symbol of Figure BB1, or
- the substance of

**CAUTION: Electric fence.**



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

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.

NOTE 1 Ancillary equipment that complies with the requirements relating to isolation between the fence circuit and the supply mains in Clauses 14, 16 and 29 of the standard for the **electric fence energiser** is considered to provide an adequate level of isolation.

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.

**PART 3: ELECTRIC SECURITY FENCES**

for **Electric Security fences** special hints are valid for the mounting and installation – ask for Annex BB2 and CC of EN 60335-2-76 with SECURA SECURITY.