



**WIZORD 4 – Electric Fence Energizer**

**INSTALLER MANUAL**



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## **INTRODUCTION**

The WIZORD 4 is a battery (12V 7AH nominal) operated energizer suitable for connection to mains (230V 50Hz nominal).

The batteries to be used are rechargeable lead-acid batteries. Non-rechargeable batteries must NOT be used. The lead-acid batteries require venting and it is imperative that the energizer be situated in a well-ventilated area.

## **DISCLAIMER**

NEMTEK Holdings (Pty) Ltd or any of its subsidiary companies does not guarantee that the operation of the product will be uninterrupted or totally error free.

Energizer specifications may be altered without prior notification.

The installer is referred to the definitions and general requirements in Appendix A.

The installer must take into consideration the applicable municipal/state/country laws concerning the installation of electric fences. General guidelines are available, or refer to the website: <http://www.nemtek.com>. International standards can be viewed at <http://www.iec.ch> and South African standards on <http://www.sabs.co.za>.

\*Energizer to be mounted vertically against a flat surface, in well ventilated area.

\*Avoid prolonged exposure to direct sunlight

STEP 1: Disconnect mains. Open the lid by removing the two cap screws. Unplug the battery terminals if connected.

STEP 2: Remove screws and battery bracket

STEP 3: Remove battery

*\*Dispose of old battery according to legal requirements. Do NOT replace with non-rechargeable battery!!*

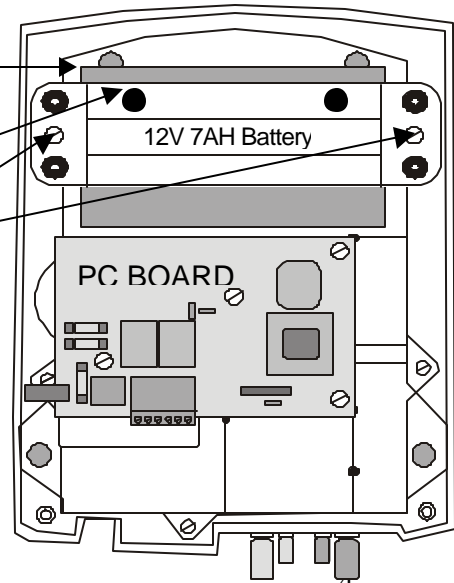
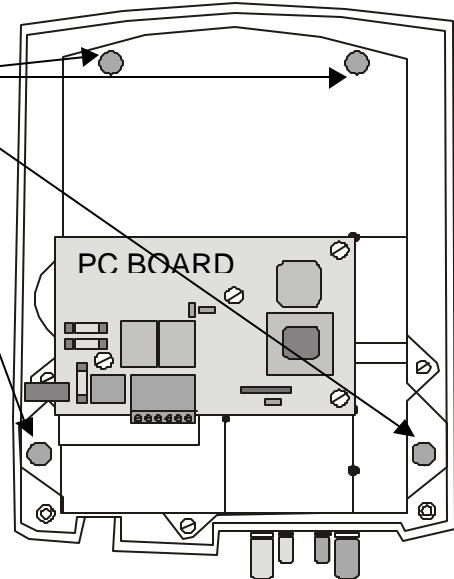
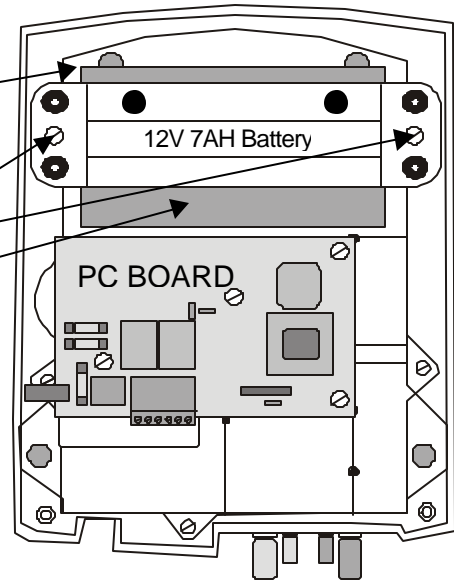
STEP 4: Drill 4 x 8mm holes for mounting the unit. Four nail-in anchors are supplied with the unit. Insert the plastic sleeve of the nail-in anchor from the inside of the box and then hammer the screw in with a screw driver and hammer.

NB: Always insert the plastic sleeve from the inside of the box.

STEP 5: Insert battery with the positive terminal to the top.

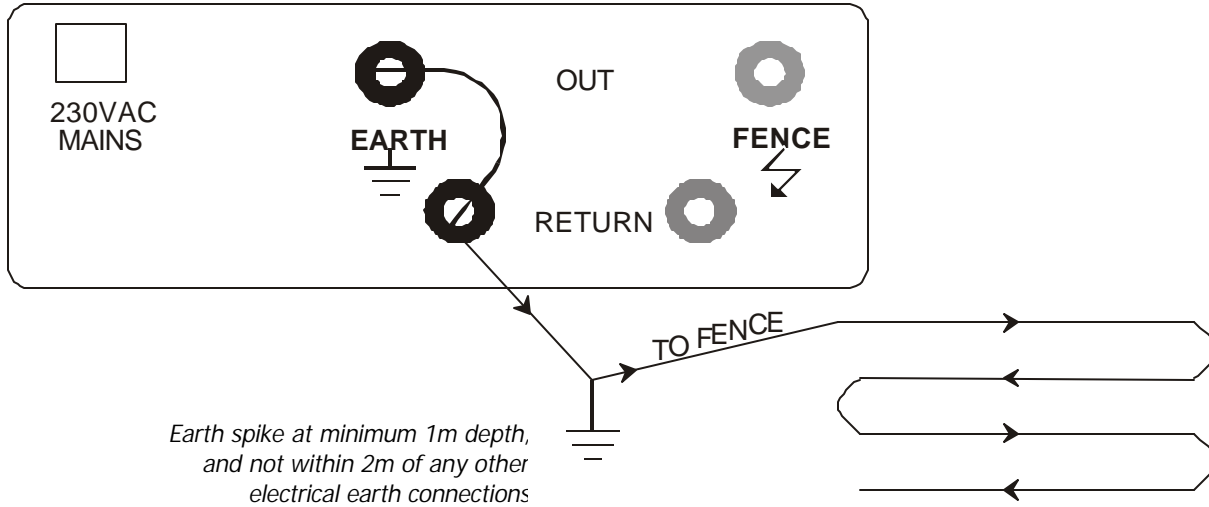
STEP 6: Place the battery bracket back (with plastic offsets at the top) and fasten the screws.

STEP 7: Connect battery wires. Close the lid by hooking the top of the lid in first and then fasten the bottom down with the two cap screws. Apply mains to the unit.



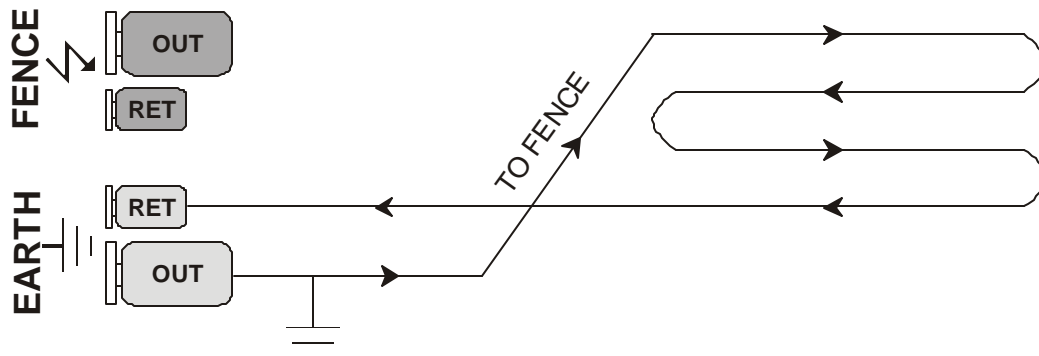
## OPTION 1: NO EARTH LOOP MONITORING

Bridge the earth OUT terminal to earth RETURN terminal. The unit will now function as per the old version WIZORD.



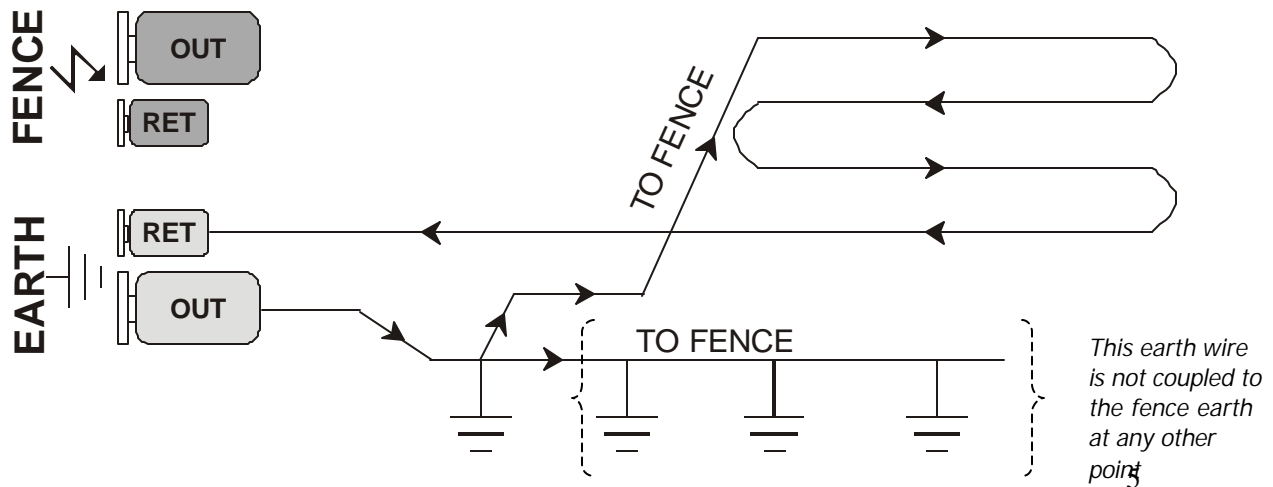
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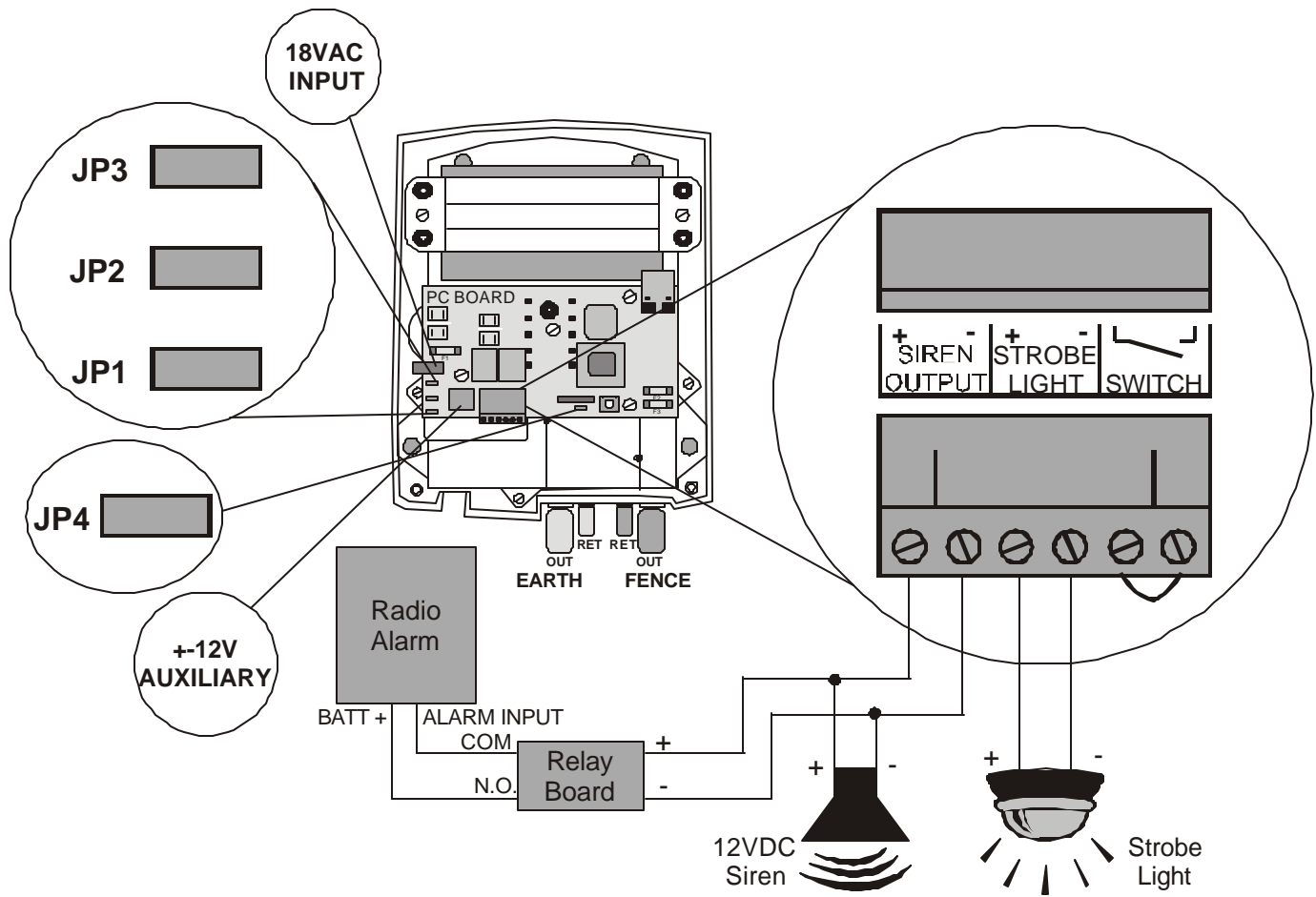
## OPTION 2: EARTH LOOP MONITORING; GOOD SOIL EARTHING



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## OPTION 3: EARTH LOOP MONITORING; POOR SOIL EARTHING





### JUMPER OPERATION:

JP1	JP2	<b>Energizer Operation</b>
Out	Out	Remote On/Off Enabled Plastic Tab Disabled
In	Out	Switch Input Enabled Switch Input Instantaneous
Out	In	Plastic Tab Enabled Remote On/Off Enabled
In	In	Switch Input Enabled Switch Input Delayed (4 min)

\* JP3 – Reserved for future use

\* JP4 – Bypass safety switch. Not to be installed during normal use.

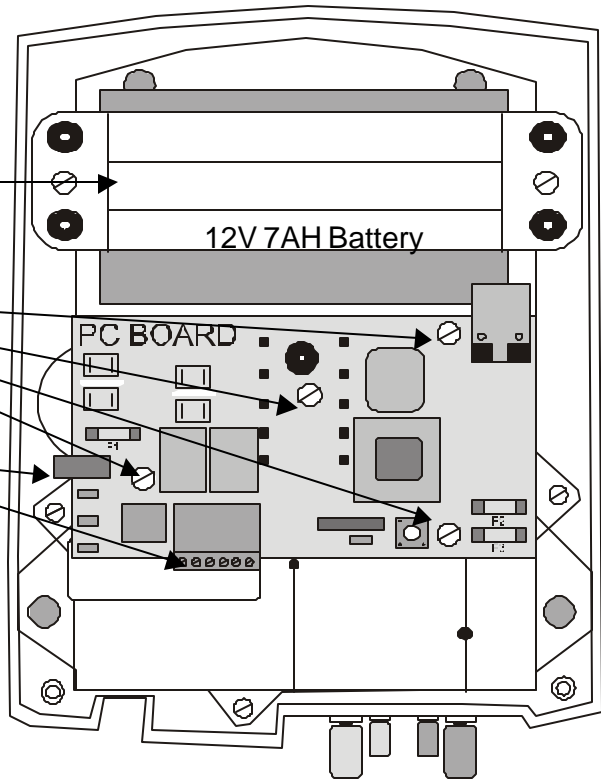
## **REMOVAL:**

STEP 1: Disconnect mains and battery terminals if connected

STEP 2: Remove screws

STEP 3: Remove all connectors from PC Board

STEP 4: Gently pull PC Board vertically upwards to remove (connections are on the back side of the PC Board)



## **REPLACEMENT:**

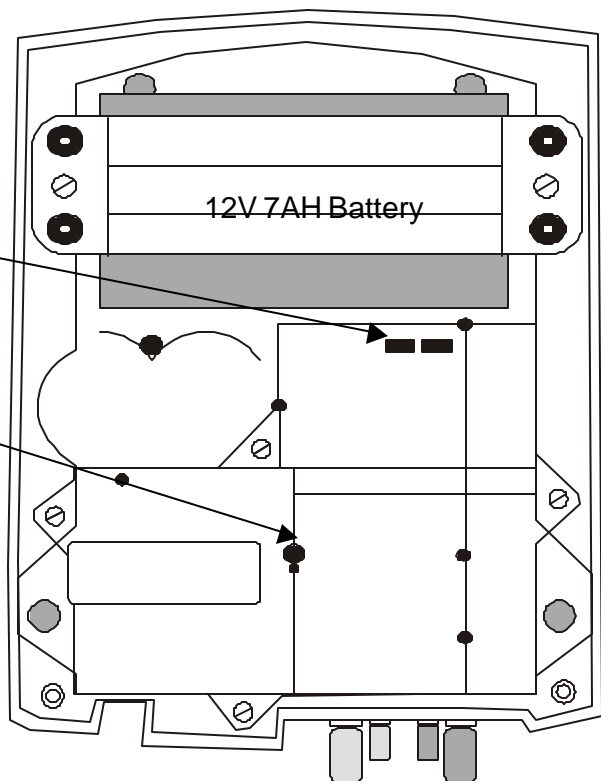
STEP 5: Gently push PC Board back into place

Take care that the spade connectors are correctly positioned before pushing the PC Board into place.

Also ensure that the opto-coupler (looks like LED) is correctly positioned before pushing the PC Board into place

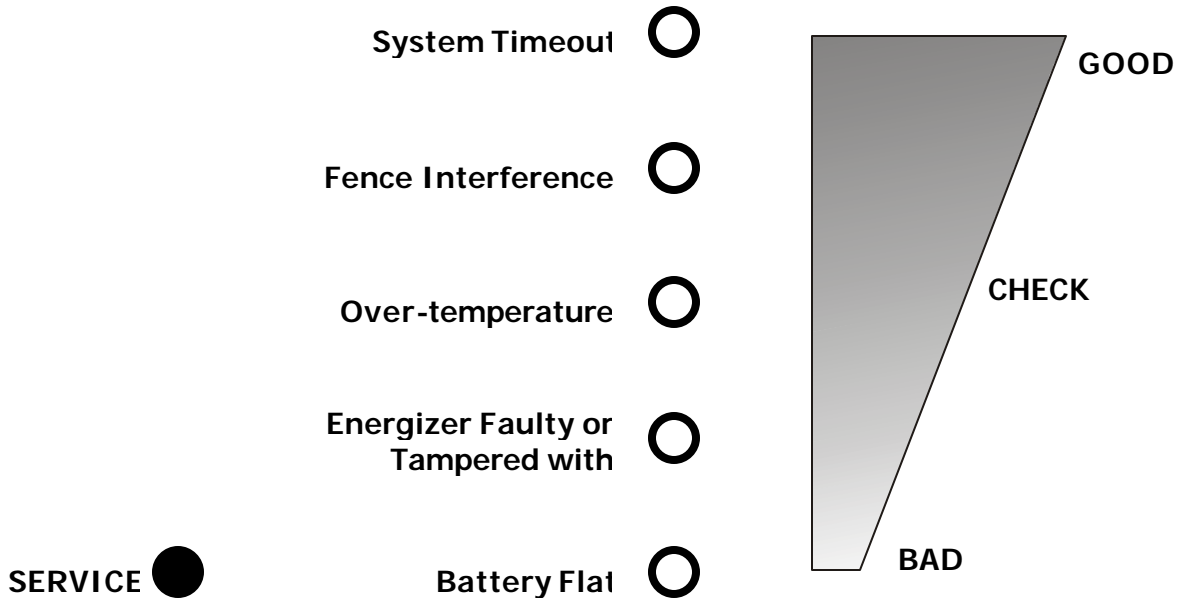
STEP 6: Reconnect all connectors to PC Board

STEP 7: Reconnect battery terminals

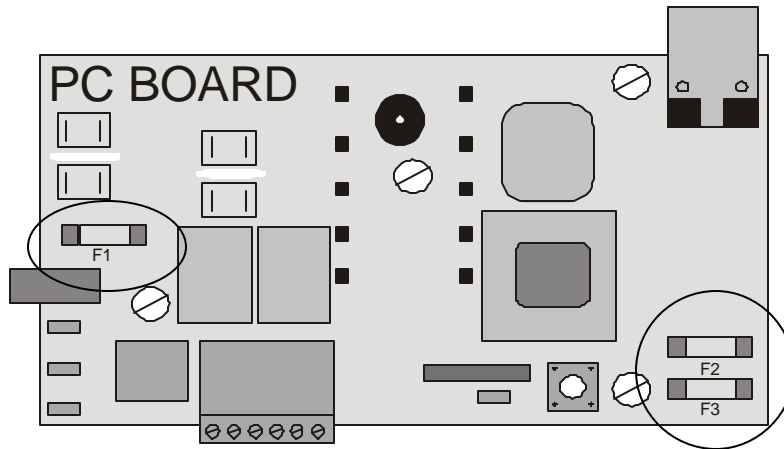


## SERVICE CONDITIONS

On removing the energizer lid and disconnecting JP4, one or more of the following service conditions may be displayed (Lit LED):



### FUSE DESCRIPTION & FAULT SYMPTOMS



#### HOW TO CHECK: (ALL FUSES ARE 2 AMPERE FAST BLOW)

- F1:** Energizer does not operate when mains is switched off
- F2:** Siren or strobe light does not operate (ensure that the unit was switched off with no fault conditions)
- F3:** Power light is not lit, even when mains is present



**BASIC DEFINITIONS:**

Electric Fence: a barrier which includes one or more electric conductors, insulated from earth, to which electric pulses are applied by an energizer.

Connecting Lead: an electric conductor, used to connect the energizer to the electric fence or the earth electrode.

Electric Security Fence: a fence used for security purposes which comprises an electric fence and a physical barrier electrically isolated from the electric fence.

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: an area where a person is not separated from pulse conductors below 1,5m by a physical barrier.

**GENERAL REQUIREMENTS FOR ELECTRIC SECURITY FENCES:**

Electric fences shall be installed and operated so that they cause no electrical hazard to persons, animals or their surroundings.

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

An electric fence shall not be supplied from two different energizers or from independent fence circuits of the same energizer.

For any two different electric fences, each supplied from a different energizer independently timed, the distance between the wires of the two electric fences shall be at least 2m. 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.

Any part of an electric fence which is installed along a public road or pathway shall be identified at frequent intervals by prominently placed warning signs securely fastened to the fence posts or firmly clamped to the fence wires. The size of the warning signs shall be at least 100mm x 200mm. The background colour of both sides of the warning plate shall be yellow. The inscription on the plate shall be black. The warning sign shall typically appear as depicted in Figure x. The inscription shall be indelible, inscribed on both sides of the warning plate and have a height of at least 25 mm.

Warning signs shall be placed at

- each gate
- each access point
- intervals not exceeding 10m
- adjacent to each sign relating to chemical hazards for the information of emergency services.

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

The energizer earth electrode shall penetrate the ground to a depth of at least 1m. The distance between any electric security fence earth electrode and other earth systems shall not be less than 2m.

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 a conduit of insulating material or else insulated high voltage cable shall be used. Care shall be taken to avoid damage to the connecting leads due to external factors.

Connecting leads shall not be installed in the same conduit as the mains supply wiring, communication cables or data cables.

Connecting leads and electric fence wires shall not cross above overhead power or communication lines.

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

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 fence wires are installed near an overhead power line, the clearances shall not be less than those shown in Table 1.

Power Line Voltage (V)	Clearance(m)
Equal or less than 1 000	3
>1 000 and equal or less than 33 000	4
>33 000	8

Table 1

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

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 5m on either side of the crossing point.

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

- 2m for power lines operating at a nominal voltage not exceeding 1 000 Volts.
- 15m for power lines operating at a nominal voltage exceeding 1 000 Volts.

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

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

This requirement need not apply where the separately energized conductors are separated by a physical barrier, which does not have any openings greater than 50mm.

A vertical separation of not less than 2m shall be maintained between pulsed conductors fed from different energizers.

Ensure that all 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 energizer. Protection from the weather shall be provided from 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.

**FIGURE X**

