CLOTSEUL

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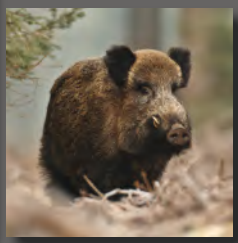
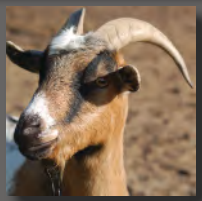
FABRICATION FRANÇAISE

Notice
Électrificateur

SECTEUR

F15150424 / K1505J0224 / K1045J0223 / K0316J1223 / K01011123
version novembre 2024





LE RESPECT DE L'ÉLEVEUR

Fig. 1 - **Installation de la clôture** (Hauteur et nombre de fils conseillés)
Installation of the fence line

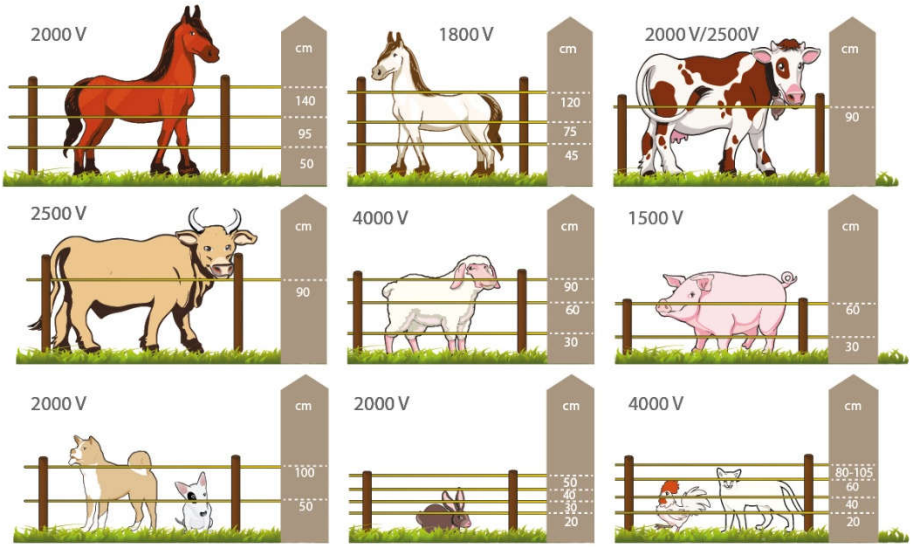


Fig. 2 - **Installation de la porte clôture électrique**
Installing your door electric fence line

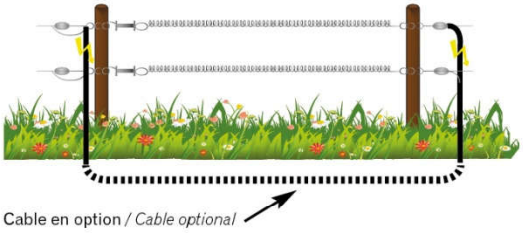


Fig. 3 - **Choc électrique**
Electric shock

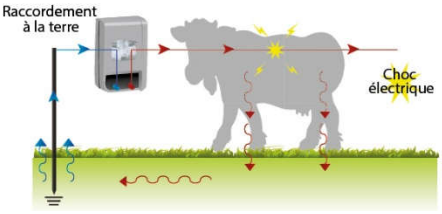


Fig. 4 - **Installation de l'électrificateur**
Installing the energizer

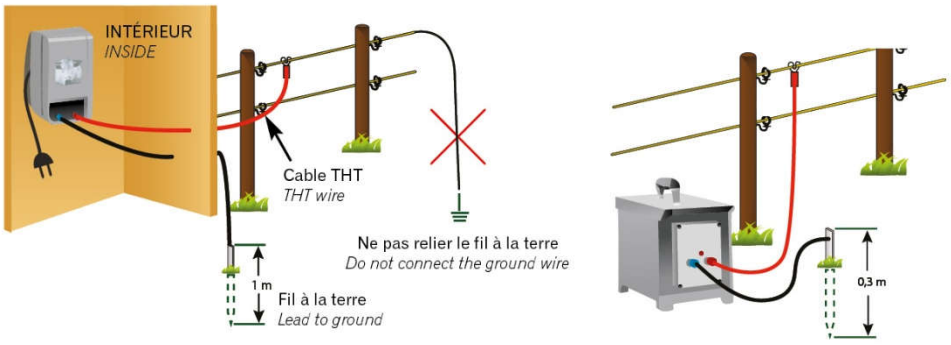


Fig. a - **Électrificateurs** / *Energizers*

Fig. c - **Fils** / *Wires*

Fig. j - **Raccords** / *Connecting*

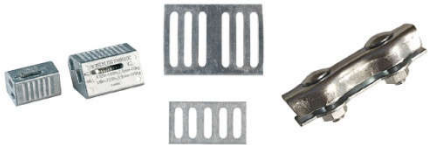


Fig. d - **Isolateurs** / *Insulators*

Fig. e - **Piquets de terre** *Ground rods*

Fig. f - **Piquets de ligne** *Line rods*

Fig. g - **Enrouleur** *Reel*

Fig. h - **Poignées** / *Handles*

Fig. i - **Testeurs** / *Tester*

Fig. k - **Cables**

Fig. q - **Piles - Batteries**

Fig. 10

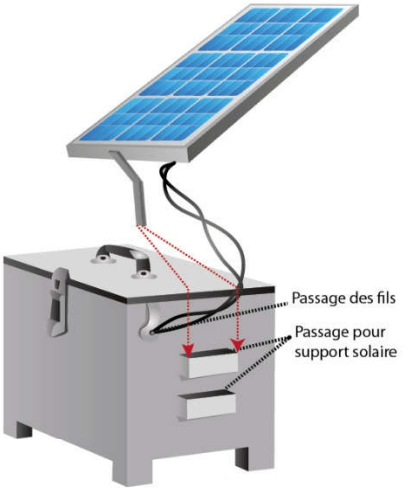


Fig. 20

Fig. 40 - **Assemblage général avec options** / *General Assembly with options*

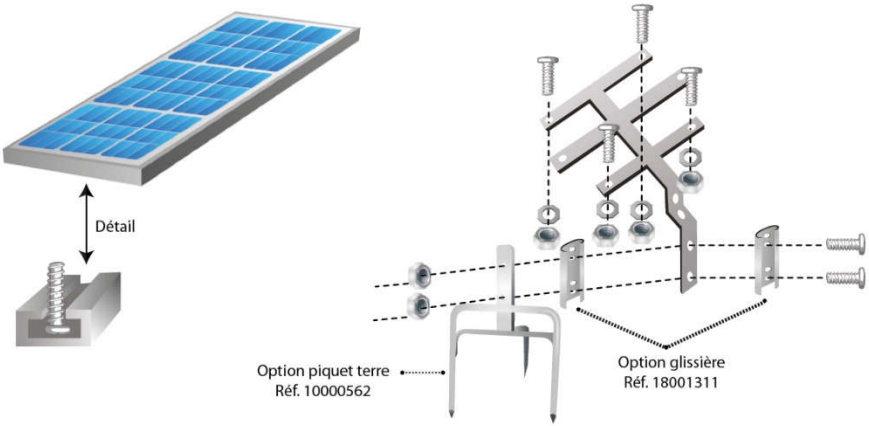


Fig. 30 - **Branchement standard**
Standard connection

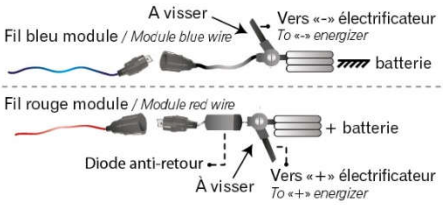
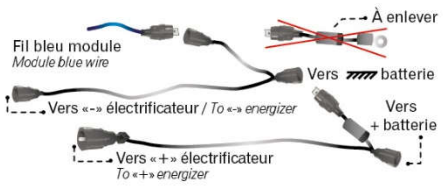


Fig. 50 - **Branchement ABS**
Connecting ABS



CLOTSEUL

Notice version 1 / november 2024.

mains powered electrique fencing energizer

Type : F15150424 / K1505J0224 / K1045J0223 / K0316J1223 / K01011123

OPERATING INSTRUCTIONS

We thank you for choosing the CLOTSEUL brand. Our electric fencing is manufactured with great care and tested before being delivered to the warehouse in order to give you complete satisfaction.

Your electric fence will enable you to fence off your various enclosures in order to keep your animals inside or to prevent animals entering from outside (in the case of protecting crops).

It only works on electric network with a nominal voltage of 230V 50Hz.

Owing to its “low impedance” technology, your electric fence will still be effective even in the event of line failure. Nevertheless, it is of the utmost importance that fencing should be installed correctly from an electrical point of view so as to avoid the risk of radio-electrical interference.

Battery-powered electric fencing must only be connected to an internal electrical installation that complies with the regulations in force.

Fencing powered by disposable or rechargeable batteries can be installed externally or under shelter, and must be far away from flammable materials.

CE All our equipment complies with EC electromagnetic compatibility requirements.

A brief summary of electric fencing:

One or more fence wires mounted on insulators form the boundary of the area where the animals are to be contained or are to be prevented from entering. An energizer sends electrical pulses along this wire at a maximum of once per second. These uncomfortable pulses pass through the body of any animal that touches the fence wire and then travel back to the energizer. The uncomfortable tingling received dissuades any animal from crossing the wire. It is important to leave the wire “in the air” at the end of the perimeter fence or to connect it to the point of departure without ever earthing it. It is the animal that makes the contact with the ground and consequently receives an electric shock. *(See Fig. 3)*

Please read before operating

Important instructions for safe and secure use of your battery fence energizer

SECURITY RULES

It is imperative to read the following, as well as the entire "energizer instructions" booklet in order to carry out an installation with the compliance with the rules in force, and safe use.

◗ Please observe and follow the instructions of safety mentioned in this notice, for avoid security issues with this device. Additionally, please observe the respective regulations of your country and/or your region.

For security reasons, following **article 7.12 of standard NF EN 60335-2-76 of September 2005:**

◗ The fence device must always be switched off before carrying out work on the energizer or on the electric fence itself.

◗ Read the safety instructions carefully.

◗ During installation, ensure that all safety rules are respected.

◗ Use only original spare parts in the event of troubleshooting or intervention in a device.

◗ Never place your energizer in a poorly ventilated area containing flammable materials. Avoid proximity to products flammable materials along the fence line.

◗ The earth connection is very important, and contributes to the proper functioning of your energizer. It must be of very good quality and careful implementation.

Caution: it must be positioned more than 10m from any other power supply earth installation such as the protective earth of your home, or land of the telecommunications network. **Connection to any earth not belonging exclusively to the energizer is PROHIBITED.**

◗ This device can be used by children aged at least 8 years and by persons having physical, sensory or mentally impaired or devoid of experience or of knowledge, if they are correctly supervised or if instructions relating to use the device safely have been given and if the risks involved have been apprehended.

◗ Children should not play with the device.

◗ Cleaning and maintenance by the user should not be carried out by children without monitoring.

◗ Mains devices must not be handled in temperatures below 5°C.

Annex BB

◗ Electric fencing for animals and its auxiliary equipment must be installed, used and maintained in such a way as to reduce any danger for persons, animals and their environment.

◗ The construction of electric fences in which animals or people are at risk becoming entangled, must be avoided.

! WARNING : équipement powered only by the electric network.

◗ Avoid all contact with the electric fence, especially the head, neck and torso. Do not try to go over, through or under an electric fence made up of several wires; use a gate or opening provided for this purpose.

! Barbed wire or other similar wire must not be electrified by an energizer.

◗ In the case of two different electric fences, each powered by a different energizer with its own time base, the distance between the two electric fence wires must be at least 2 m. If this space has to be closed, materials that are not electrical conductors must be used or an insulated metallic separation.

◗ When an electric fence crosses a public footpath, a non-electrified gate must be installed at the corresponding point in the electric fence or an opening with a stile. In all cases of crossing, adjacent electrical wires must have panels warning *(see photo below CLOTSEUL electric fence)*.

◗ Any part of an electric fence installed on along a road or public path must be identified at frequent intervals by warning signs affixed securely to the fence posts or attached to the fence wires. In general, signs like below should be placed at every gate or access point and at intervals of 10 m maximum.

The size of the warning signs must be at least 100 mm x 200 mm, black characters (character size 25 mm minimum, both sides, non-erasable) on a yellow background with the content mentioning "ATTENTION CLOSING ELECTRICAL" and/or pictogram as shown in the image below:

◗ Never connect several energizers to the same fence line.

◗ The energizer must be connected to its own earth and not that of any other system.

◗ Always maintain a distance of at least two meters and fifty (2.50 m) between two fences powered by two energizers.

◗ Connecting wires located inside buildings must be properly insulated from grounded structural elements of the building. This can be done by using an insulated high voltage cable.

◗ Buried connection wires must be inserted in ducting made from an insulating material, or a high voltage cable that is insulated in some other way must be used. Care should be taken to prevent damage to the connecting wire caused by animals' hooves or tractor wheels sinking into the ground.

◗ The connection wires must not be installed in the same conduit as the cables power supply, communication cables or data cables.

◗ Connecting wires and electric fence wires must not pass above overhead power lines or communication. Wherever possible, crossing overhead power lines must be avoided. If crossing an overhead power line cannot be avoided, the connecting wire must pass under the power line and at right angles to it, if possible.

◗ If the connecting wires and electric fence wires are installed close to an overhead power line, the clearance must not be less than that indicated in the table below:

Line voltage electric (Volts)	Isolation distance (meters)
1 000	3
>1 000 < 33 000	4
>33 000	8

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

This height restriction applies to all sides of the orthogonal projection of the wires that are outermost from the power line at ground level, 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 that is in excess of 1 000 V.

◗ A distance of at least 10 m must be maintained between the earth electrode of the energizer and any other connected part of the earthing system, such as the power network protective earth or the telecommunication network earth.

◗ Electric fences that are intended to frighten birds, to contain domestic animals or to channel animals such as cows only need to be powered by low output level energizers in order to provide satisfactory and reliable performance.

◗ With electric fencing intended to prevent birds from perching on buildings, no electric fence wire must be connected to the earth electrode of the energizer. An electric fence warning sign must be installed at all places where people can access the conductors.

◗ A non-electrified fence incorporating barbed wire or other similar wire may be used in addition to one or several staggered electrified wires in an electric fence. The supporting devices for the electrified wires must be constructed so as to ensure that such wires are positioned at a minimum distance of 150 mm from the side elevation of the non-electrified planes. The barbed wire or all other similar wire must be earthed at regular intervals.

◗ Protection against bad weather must be provided for auxiliary equipment unless the equipment is certified by the manufacturer as being suitable for external use and has a minimal degree of IPX4 protection.

Mains powered enegizers must be installed under shelter. It is equipped with a natural ventilation system; under no circumstances should you lock up this under plastic protection or in a tank included in the ground, otherwise it will be seen an abnormal level of humidity inside your device. Provide a battery of 40 to 120 Ah 12 Volts for your energizer. The type of power supply is written on the box of your energizer.

▮ Safety during operation:

◗ Lightning can cause fires on electric fence systems and cause malfunctions. It may be useful to disconnect the appliance from the installation if it is not used on the Mains side and the fence line wire (let the earth wire in place).

◗ Avoid placing flammable objects near of your electric fence. Cutting nearby brush also reduces

the risk fire, because short circuits in the system fence can cause sparks.

◗ Do not use the device if there is a risk of flooding of the electric animal fence (pasture fence).

◗ If the interval between pulses is less at 1 second, the device must be immediately turned off and repaired if necessary. In the case of a interval greater than 1.8 seconds, between pulses, the device no longer ensures the safety of keeps animals and must be controlled.

USING YOUR ELECTRIC FENCING ENERGIZER

After reading all of the above, and scrupulously respecting the instructions and indications, implementing your energizer is simple.

Your energizer connects to the electrical energy distribution network with a voltage of 230V and a frequency of 50Hz.

The wall socket to which your device will be connected must be compliant with standards and correctly connected to your meter via a circuit breaker against short circuits, and a 30mA differential type cut-off device against earth leaks.

These devices are mandatory and contribute to your safety, and that of the device in the event of an overvoltage or storm.

The mains appliance must not be exposed to moisture, it must be securely fixed to the wall using the metal bracket supplied with it, or using securely attached screws.

Hang the energizer on the wall, connect the earth wire to the green terminal located on the front of the device, then the insulated high voltage wire, after stripping it over 2 cm, to the red terminal of the device. (See implementation of the earth, the fence wire and the required conductors as explained in this notice).

To activate the energizer, simply plug its cord into the STANDARDS power outlet! as shown above. From this moment on, it is operational. It will generate high voltage with a maximum of 60 minutes. If it were to accelerate, you must immediately unplug it and have it checked by a technical service; it is dangerous to use an energizer that generates more than 60 strokes per minute.

To work on the fence line, simply unplug the power plug from the wall outlet, and the device stops immediately. You can safely touch the fence wires.

Consult your dealer for after-sales service.

On the green terminal, connect ground stake if possible, the most humid place (foot of hedge, etc.).

On the front panel, between the output terminals red and green, a red light allows you to instantly control the sending of a voltage on the fence line. This should light up at rhythm of electrical impulses (between 45 and 60 minute shots). If it does not light up, this means that the appliance is not working, or that there is a very significant loss of energy (short circuit, too dense vegetation on the conductors, wire fallen to the ground, defective insulator etc.) on the fence line. The tension in the wire is then very weak. It is absolutely necessary to find the origin of the problem if we want good guarding of the animals.

Remember to monitor the good functioning of the installation.

▮ Repair of your energizer:

Any repairs must be carried out by personnel trained and competent. Any replacement of wires power supply must be made with parts of original spare, respecting the fuse and its rating of 1 A if present.

DANGER : Access to the part containing the electronic components of this device must only be carried out by trained personnel and warned. High voltages may be present on the capacitors and in several places in the device, even at shutdown in the event of a malfunction the electronic card.

ADDITIONAL INFORMATIONS

A booklet with installation advice is supplied with your fence energizer. This provides information on the entire physical fencing installation, to properly fence simple and understand the operating principle of electric fence installation.

It is in addition to your energizer fence. Improper installation can reduce nullifying all the effectiveness of your closing station.

These installation tips are the same as is a device on mains, on battery, or on battery. The powers of the devices have to be adapted according to the animals to be kept, according to the energy available (presence of the distribution network), electrification distance.

▮ Routine maintenance or dealing with faults:

Repairing an energizer and replacing components requires special knowledge of the device. They must be imperatively made with the components CLOTSEUL adapted, by a qualified

person and authorized. In the event of a malfunction of your energizer, please contact your

authorized CLOTSEUL reseller (place of purchase of material).

Associating cards and transformers with capacitors without respecting base references can be risky and dangerous!

In the event of a malfunctioning of your energizer, please contact your authorised retailer (from whom the material was purchased). For your information, when changing a replaceable energizer fuse manually it must be substituted with an identical 1 Amp 5 * 20 quick blow glass fuse.

▮ Precautions :

Avoid all contact with the electric fence, especially the head, neck and torso. Do not try to go over, through or under an electric fence made up of several wires; use a gate or opening provided for this purpose.

Neither human beings or animals should receive more than one electric pulse per second. This is why you must never connect more than one energizer to a fence, even if it has several rows of wires.

Similarly, if abnormal operation such as excessive pulses numbering more than 60 per minute is encountered, the fence must be immediately disconnected and taken to the retailer for repair.

The distance between two different fences powered by two separate energizers must never be less than 2 m so that no person or animal can inadvertently receive more than one pulse per second by touching both fences simultaneously.

Ensure that in all circumstances an animal touching the fence can move away from it: any prolonged contact with the fence could cause serious burns (for example, do not run an electric fence through marshy ground where an animal could get stuck in the mud and be immobilised).

Do not use telegraph poles to support the wire of an electric fence.

Mains devices must not be handled in temperatures below 5°C.

Do not use this device for any other purpose than that for which it is intended.

Do not let an infant or small child play next to an electric fence.

Meaning of the symbols used by Directive 2002/96/ec of 27.01.2003 printed on the energizer

Read all instructions before use.

This product must be recycled separately from other waste. It is therefore your responsibility to recycle this waste electronic equipment by taking it to a designated collection point for the recycling of electrical and electronic equipment. The separate collection and recycling of standard waste protects natural resources and ensures that products are recycled in such a way as to protect human health and the environment. For further information on recycling points for electrical and electronic waste, contact the recycling department of your local authority or the retailer from whom you purchased the equipment.

Refer to Directive 202/96/EC of 27.01.2003 concerning waste electrical and electronic equipment (WEEE).

TO KNOW MORE

▮ How does my energizer and its accessories work?

• **energizer** *(fig. a)*

An energizer is a device that transforms electrical energy taken from the grid returning it in the form of electrical pulses. These pulses range between 5000 and 15 000 Volts depending on the energizer model and are sent at a maximum rate of once per second along the fence wire. The high voltage means the electricity travels more easily, but the pulses are naturally very short with more or less energy (quantity of electricity). This means they are not dangerous but are very uncomfortable.

In addition to the voltage, there is a certain quantity of electricity with each pulse that is measured in Joules (unit of measurement of the quantity of electricity over a period of time), very close to Wh. It is this quantity of Joules that differentiates between the power of various fencing devices.

The greater the energy, the more painful the spark and the device can power a longer length of fence wire.

It is therefore important to adapt the device to the type of animals to be contained. A low energy

device that is perfect for a dog will only amuse large cattle and will have no effect whatsoever on the latter. Conversely, it is not necessary to punish a dog severely to make him understand that he must not cross the wire! This also explains the choice of power operation and the range of devices offered.

Devices powered by disposable and rechargeable batteries are portable and useful where there is no other source of energy.

• **Energy output** *(fig. b)*

The energy output is measured in Joules. The reference value is 500 Ohms. In order to have energy, electricity must be consumed and the value of 500 Ohms is taken as a reference, including by the regulations, in order to measure all the energizers on the market under the same conditions regardless of their output voltage. Sometimes a large number of Joules is specified, however it all depends on what is being referred to.

This may be the maximum number of Joules supplied by the energizer.

This may be the number of Joules in reserve in the energizer capacitors.

This may be the number of Joules below 500 Ohms.

Consequently, a comparison between one device and another or rather between one brand and another is impossible unless the common value used to obtain this energy is specified.

• **Fence wire** *(fig. c)*

The more the fence wire is a conductor of electricity, the greater the energy carried in Joules and the more the wire is suited to long lengths and large devices.

Electricity travels with more difficulty along a very fine wire which is not a problem over a short length of wire and with a small energizer, but it becomes more of a hindrance for long lengths of wire and large energizers. An Ultra Low Impedance energizer will never be able to send all its energy if the wire is too small. It is the same principle as the rate of flow of water in a pipe; it is impossible to obtain several cubic meters per hour using a very small tube, despite having a full reserve.

There are many different types and technologies of fence wire, including colours that make the wire stand out to a greater or lesser degree so that it is visible, or conversely so that it does not show up against the natural background. Tapes and cords are often used for horses and wire for cattle, depending on requirements and preference.

• **Insulators** *(fig. d)*

Insulators all have the same purpose: to best insulate the wire carrying the electricity in relation to the ground or any support that is in contact with the ground, which would cause significant losses of energy. The current would travel back to the energizer and an animal coming into contact with the wire would not feel anything. The type of insulator varies according to their application, for example for screwing onto wood, affixing to metal stakes, etc..

The quality of the insulators is important and, following their application, some will be faster to implement than others.

• **Earth stakes** *(fig. e)*

Since the electricity travels back to the energizer (passing through the animal when it touches the wire) (Fig.3), the quality of the earth stakes is very important; it is as important as the choice of conductor wire. Poor soil conditions prevent the electricity from passing through the animal. The stakes should be installed carefully and the dampest possible spot chosen. Several earth stakes (5) will be necessary, spaced one meter apart, when using very powerful devices such as Ultra Low Impedance, for example.

• **Fence picks** *(fig. f)*

Line stakes allow the wires to be tightened and may be made of iron, plastic or wood. Generally, the stakes are spaced 3 to 4 meters apart on average, depending on the weight of the wires. Sometimes, wooden stakes are used every 20 meters to tighten the wire and simple plastic, fibre or iron stakes every 3 meters to stop the wires drooping between each of the wooden stakes.

Plastic, fibre or iron stakes are also recommended for temporary enclosures that will be dismantled once the animals have left.

• **Reels** *(fig. g)*

Reels are ideal for unwinding and rewinding the wire or cord in the case of temporary enclosures. Some reels are even geared so that the wire can be unwound faster. The reels are attached directly to a stake.

• **Gate handles** *(fig. h)*

Gate handles create a point of passage allowing the enclosure to be opened while holding the insulated handle safely in one's hand with no risk of receiving an electric shock. This enables the energizer to be left in operation and the animals confined while you may enter and leave the

enclosure as you wish. Gate handles are also a quick means of opening and closing an enclosure.

It is, however, advisable to pass a high voltage cable in the ground to connect the wires following on from the gate handle; in this way, even if the gate handles are removed the rest of the enclosure will still be electrified. *(fig. 2)*

• **Testers** *(fig. i)*

There are testers with lamps or digital testers giving a direct display of the line voltage. Others show the direction of energy losses.

The purpose of testers is to make it easier to identify faults and ensure sufficient line voltage in order to confine the animals. Testers are one of the indispensable tools for easily checking the perimeter of your electric fence installation. Although the indicators and lamps of the energizers give a good idea of the line voltage, it is almost impossible to find a fault in the event of accidental breaks in wire or tape conductors. The tester enables checks to be made at different points of the fence installation.

• **Connectors** *(fig. j)*

There are numerous connectors according to whether wire, cord or tape is used. The connection of conductors is particularly important because if there are bad contacts between several conductors there will be sparks and interference of radio waves, telephones, ADSL or even DTT. Furthermore, the sparks will cause overheating that will melt the plastic and the tape or wire will be irrevocably damaged. In the end the current will no longer be able to pass through these sections resulting in a fault.

• **High voltage cable** *(fig. k)*

Standard commercial electrical cables are only rated for 800 Volts. This is a long way off the 15 000 Volts that your energizer can supply. So, after a few days, the cable will become perforated and sparks will make contact between the fence wire and structures connected to the ground (clay wall, wet conglomerate, cable ducts, building structures, shelters, etc.). All or part of the electricity will be lost before even reaching the electrification point.

A high voltage cable will not perforate and all the electricity from the energizer will be available at the connection point at the start of the fence installation.

The high voltage cable can be laid in a cable duct without any problems and can extend to several hundred meters in length without any losses.

Only the fence cable needs to be a high voltage cable, the earth cable can be a standard wire since the voltage at the earth rod is low provided it is installed well and there are not too many losses from the line.

• **Vegetation** *(fig. m)*

Depending on the power of your energizer, there will be a noticeable difference in the case of over-abundant vegetation along the line. Ultra Low Impedance devices will have no difficulty in adapting and continuing their task of containing animals. Standard devices will burn the few blades of grass touching the wires, but in the case of a mass of vegetation their performance will be more or less affected. This will also depend on the distance of the vegetation. Consequently, for the optimum output of your energizer it is recommended that the wires be kept clear of vegetation.

• **Type of animals** *(fig. n)*

The choice of energizer, the type of conductors and the height at which they are installed play an extremely important role.

Starting from this, with the aid of the pictograms shown on the devices, the advice of your retailer and your layout diagram, you will be able to choose the appropriate equipment while taking into account the various parameters. *See the section below.*

• **Length of fence** *(fig. p)*

The length of electrified fence influences the type of energizer. The longer the fence, the more the number of losses increases proportionally.

It is not the total length of wire that counts, but the perimeter of the enclosure provided all the wires have been connected to each other at the beginning and end as shown in the diagram. Fences with several wires connected together are more advantageous than those connected to a single wire. They allow for an easier passage of the current and the electricity sent by the energizer.

• IMPORTANT INFORMATION:

All energizers have natural ventilation; they must not under any circumstances be enclosed under protective plastic covering or placed in an underground tank. This would give rise to an abnormal level of humidity inside your energizer.

The simplest method without maintenance is to power your energizer from the mains.

▮ Materials required

Wooden, iron, plastic or fibre stakes approximately 1 to 1.5 m high. Good quality porcelain or

plastic insulators, galvanised iron wire or tape, or flexible wire such as "filinox" consisting of steel and polyethylene (plastic) wire, accessories such as gate handles, a metal earth rod and high voltage cable for crossing walls or running alongside building structures.

▮ Installing the fence

(See the diagrams at the beginning and end of this booklet)

Once you have determined the location for the fence, clear it of any weeds that could touch the fence wire once it is in place.

Drive in your stakes at 3 to 5 meters intervals (put them closer together on uneven ground). Reinforce the corner stakes and all those bearing traction with strengthening junctions. Then attach the insulators to the stakes at the height desired, gradually unwinding the wire and passing it through the points provided on the insulator. Adjust the height of the row(s) of wire or tape according to the type and size of animal to be confined. *(See diagrams, fig. 1)*

It is not necessary to make a loop and return to the point of departure in order for the fence installation to work properly. You can stop the installation at the last insulator at the end of the line. **Never connect the wire to ground at the end of the layout** *(fig. 4)*. It is the animal that will close the circuit the moment it touches the wire; in this way, the electricity passes through the animal and travels back to the energizer via the ground and earth system.

Affix the energizer to the wall using 2 screws whose centre distance corresponds to the attachment holes on the back of the energizer body, or using the metal support provided.

WARNING!

If you cross a wall or partition wall between the spot where you have installed your energizer and the place where you electrify the enclosure, and if the wire carrying the electricity cannot be mounted on insulators, it is of utmost importance to use special high voltage cable. Standard electrical cables are only rated for a maximum of 800 V which is a long way off the 10 000 or 15 000 Volts that your energizer can supply. Standard wire will end by becoming perforated and there will be numerous losses, sometimes completely eliminating the effectiveness of the energizer.

▮ Gate or opening

The gate is a few meters wide and also comprises a wire. The hook and spring assembly known as a "gate handle" is situated at one end of the wire; while the other end of the wire is attached to a pulley or a loop that you have made from the wire, or by means of special insulators such as A4021 (*fig. 2)*.

This arrangement enables you to enter and leave the enclosure by unhooking the gate handle without the risk of receiving an electric shock, and then simply re-attaching the gate handle. The gate handle with its insulated grip enables you to open the circuit for enough time to pass through without, however, stopping the energizer.

▮ Recommendations for maintenance of the electric fence

Your fencing device that is connected to the distribution network does not require any special maintenance. However, we remind you that it is strictly forbidden to place any device connected to the network outside. Regularly check the output indicator of your energizer to see that it flashes at regular intervals, and when necessary take a tour of your installation to prevent too much vegetation disrupting the overall operation of the fence. Any spark source causes interference. This can disturb the reception of audio-visuals programmes, etc. Your installation must therefore be electrically correct

▮ Testing

When you introduce your animals into their electrified enclosure, always carry out a little training. Gently push the animals towards the electric wire so that each animal receives one or two electric shocks. That will be sufficient for them not to go near the fence any more.

▮ Electric fence signage

Signage on the electric fence is obligatory when the fence runs alongside a public highway, and also when it is accessible but people are unaware of its presence. The user must therefore place along the accessible parts of the fence at a maximum of 50 meters intervals a clearly visible sign with the wording «Electric fence» or a pictogram of a hand as specified above in the Section *instructions for installing and connecting electric fencing for animals*.

▮ Earth system

The role of the earth system is extremely important for the effectiveness of your electric fence whatever the type of energizer, and connections must be particularly well made. In fact, all the electrical energy that passes through the animal travels back to the energizer via the earth system. If the earth system is of poor quality, it will prevent an easy return of the electricity and the animal will feel nothing. The earth system must be more than 10 meters away from all other earthing systems (house, telephone, etc.),

taking into account the route of the high voltage cable. If it has not rained, pour several litres of water over the earth system once a week so as to reduce its resistive value and avoid the electricity not returning to the energizer. For disposable/rechargeable battery devices, a small 30 cm stake is generally sufficient. However, for mains devices, one 1 m stake is required as a minimum; sometimes several stakes are necessary if a high voltage is detected between the earth stake and the ground (> 2 500V) or for Ultra Low Impedance devices.

▮ Repairs

The repair of an energizer and the replacement of its components require specialist knowledge of the device. Repairs must be carried out using original components by a qualified and authorised person. In the event of a malfunction of your energizer, contact your authorised retailer (place of purchase).

For your information, the energizer fuse must be replaced by an identical.

FURTHER INFORMATION

▮ Energiser with LED (graphic) output information

On the front of the energiser, a row of LED lamps lights up according to the losses on the line. The greater the losses on the line, the higher the number of LEDs that light up. This means that with a perfect installation only the green LED will be illuminated ; then as losses occur, the other LEDs will light up in turn. When the orange LED is illuminated, approximately 3500 volts remain on the line ; this will still contain the animals, but it is time to check your overall installation.

Losses on the line may be due to branches falling on the wire, insulators in poor condition or over-abundant vegetation touching the wires (all the LEDs light up).

If no LED is illuminated and there is no voltage on the line, there must be a break in the wire or tape conductors.

If there is electrical current at the earthing system, it means the system is of insufficient quality and there will certainly also be significant losses on the line. The electrical energy sent by the energiser cannot travel back correctly to the energiser and stagnates at the foot of the earth stake.

▮ Energiser with digital display

When the energiser is live, sometimes the display shows a value that should not be taken into account. This value is used by the technical department in the event of a fault to measure what is known as “residual voltage”.

In order to obtain the voltage remaining on the line at the start of the installation, press and hold down for two or three clicks of the energiser the TEST button located next to the output terminals.

The value indicated is read in kilovolts, for example:7.8 KV is equal to 7800 Volts. The value can also be interpreted as a percentage, in the above example this means 78% of the energy supplied by the energiser has been returned.

The better the line is insulated, the higher the value in volts.

On the digital energiser, there terminal corresponds to full power, the yellow terminal to reduced power and the green terminal to earth. You can power two facilities at the same time, one with reduced power by connecting to the yellow terminal and one with full power by connecting to the red terminal.

Note that the value measured indicates the energy in volts that has been returned to the line. This does not mean you will have the same voltage at the end of the line if there are breaks in the conductors. Losses are detected, but not breaks in the conductors or openings in your electric fence circuits.

▮ Energiser with 1 control lamp

The line control lamp located between the output terminals of your energiser must light up once per second. If the energiser clicks and the lamp does not light up, this means there is an insulation fault on the line. If the lamplights up once per second with each click but there is no electricity on the line, this means there is a break in one or more wires or a poor-quality earthing system. If there is current at the earthing system, this means the line has short-circuited and the earthing system is not very good. Do not hesitate to wet the earthing system from time to time in summer.

▮ Energiser with 2 outputs

On the energiser, the red terminal corresponds to full power, the yellow terminal to reduced power and the green terminal to earth. You can power two facilities at the same time, one with reduced power by connecting to the yellow terminal and the other with full power by connecting to the red terminal.

For all the energisers, the line control lamp located between the output terminals of the energiser must light up once per second. If the energiser clicks and the lamp does not light up, this means there is an insulation fault on the line.

If the lamp lights up once per second with each click but there is no electricity on the line, this means there is a break in one or more wires or a poor-quality earthing system. If there is current at the earthing system, this means the line has short-circuited and the earthing system is not very good. Do not hesitate to wet the earthing system from time to time in summer.

▮ Ultra-Low Impedance energiser (U.B.I.) and delayed effect

• Description

You have just purchased an Ultra-Low Impedance energiser and we congratulate you on your choice of product. This energiser is designed to operate in the most extreme circumstances and to ensure optimum conditions for enclosing your animals. Ultra-Low Impedance (U.B.I.) means this device is designed to operate with electric fence lines that have even been

"invaded" by vegetation, where a traditional device would be incapable of delivering sufficient energy and voltage to ensure the complete surveillance of your enclosure.

We would ask you to read the recommendations at the beginning of this booklet concerning all the safety regulations, use and installation instructions for electric fencing. This device is for connection to the mains,

it is prohibited to install the energiser outside for obvious safety reasons.

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We would ask you to read the recommendations at the beginning of this booklet concerning all the safety regulations, use and installation instructions for electric fencing. This device is for connection to the mains,

it is prohibited to install the energiser outside for obvious safety reasons.

WARNING ALARM !

As required by the regulations, your energiser will enter an alarm state after six pulses in the event of a significant change in impedance being detected on the line (passing from more than 1000 ohms to less than 400 ohms). This means a sudden and important fault has occurred on the line. Such a variation maybe associated with the fall or entanglement of a per-son or animal on the fence line. Thanks to its micro-controller, your Ultra Low Impedance energiser will only send six standard pulses (5 Joules maximum). If the fault is still identified, an alarm bell will sound for 10mn or until the disappearance of the fault if this occurs in less than 10mn, and one pulse in three will be sent. One pulse in three gives a maximum level of security. At the end of 10mn, the device will resume its normal cycle and may correct the faults if necessary, by sending more energy, level by level as des-cribbed above.

This energiser complies perfectly with the safety curve set out by Amendment A12 of the regulation concerning the quantities of energy sent along the line as a function of the state of the line. As required by A12, the measurement and punishment occur immediately in the same 10 ms maximum pulse, ensuring maximum safety for any person or animal coming into contact with the line.

Nevertheless, we require you to place a warning sign every 10 metres along any public footpath or high-way.

• Additional installation for ultra-powerful devices

Your energiser UBI is an ultra-powerful device. It can only send its full power if you have an impeccable installation. The energiser is capable of containing animals in the worst conditions with abundant vegetation, but on the sole condition that it is given the means to do so. This is why it is of the utmost importance to drive in at least 5 one metre earth stakes (ref.07 000 332) in a damp place (below a drainpipe) atone metre intervals with an ordinary 6mm² section copper wire. The ground is the most important part not to be neglected since it returns the electricity to the device. Poor soil conditions will block all or part of the energy the energiser intends to send. It is important to use special high voltage cable to guide the energy of the Ultra-Low Impedance device towards the electric fence, especially if crossing a wall. Standard cable is made for a few hundred volts and is not suitable for high voltages.

As regards conductor wires, the only wires that work with this type of device are those made of galvanised steel with a very low ohmic resistance, i.e. they offer the least resistance to the passage of electricity. These are electricity carrying wires : (CAG, single strand, aluminium wire, steel wire, smooth equine cable, etc...). It is extre-

mely important to favour this type of wire for carrying energy. Then to divide an enclosure into separate parcels of land, split a field in two, etc...you can use any type of wire, even electroplastic wire that can easily be found on the market. On the other hand, you need to know that if vegetation grows close to these widely marketed wires, that are much less suited to carrying large amounts of electricity, the Ultra-Low Impedance energiser will not be able to send the required quantity of energy to that spot. However, often vegetation is not an issue with dividing the enclosure into strips and operation will be perfectly ensured in the event of this type of wire falling to the ground and considering lengths of a few hundred metres. To summarise, widely marketed wires must not be used in series or to power a whole enclosure. On the other hand, carrying wires can be used over several thousands of metres. In order to improve performance, it is advisable - where possible - to go on a tour around the land to be contained, returning to the point of departure. The purpose of this is to divide the distance by two with respect to the energiser by the simple fact of powering the same line from both the right and the left. Furthermore, itis recommended that all the conductors be connected together at the start of the line and also at the end of the line when there are several heights, this corresponds to increasing the section of the conductor and improving its conductivity for a maximum passage of electricity. One day when the wires are covered in vegetation your Ultra-Low Impedance energiser will show off its power to the full extent !

Where you use insulating gate handles, it is important if the gate handle is located on the main carrying wires to make the passage from one side to the other using a THT special cable buried in a cable duct(fig.2). This is a parallel assembly to the aerial wire. In this way, all the electricity will travel along this cable and continue to power the rest of the enclosure, even if you drop the gate handle on the ground during the time it takes to pass through. Another reason: this facilitates the passage of the current because the contact surface of the insulating handle on the conductor wire is so small that with a lot of energy a series of sparks is set off that could disturb radio waves, make a crackling noise and above all cause rust that would restrict the carrying of large amounts of energy over time.

BE CAREFUL WITH MEASUREMENTS !

When you want to measure a voltage sent by the Ultra-Low Impedance energiser, you should know that the digital equipment available on the market does not work.

The explanation : we have already seen that the pulse formed by your Ultra Low Impedance energiser consists of a minuscule measurement pulse and a punishment pulse that depends on the result of the measurement, this all happens in a relatively short space of time, so short that the animal only feels one shock. Electronic devices with digital dis-plays are very fast and consequently only take into account the first information they receive and then freeze. In short, they display the measured voltage value and not the punishment value so that you have the impression that the Ultra-Low Impedance energiser only gives out a few hundred volts. However, you soon realise the measurement is false when you see the sparks, their length and the noise in relation to the value displayed. The same is true of joule meters that do not take the punishment curve into account, freezing at the first piece of information needed by the Ultra-Low Impedance energiser in order to calculate the line impedance.

To carry out a true measurement, you should use the C15000 with indicator lights. In fact, the lamps will light up according to the maximum inclusive voltage on the line, not over one part of the curve only but over the two curves. The punishment curve will be taken fully into consideration visually when the measurement is made.

• Further information

This Ultra Low Impedance energiser needs no maintenance. In the event of the malfunctioning of certain components, an internal system controlled by the micro controller (a sort of tiny computer) enables it to continue working in minimum mode (5 Joules), level 1. It will not increase the level. In the case of a bug in the internal computer program, the computing device consisting of the measurement circuit and the micro controller will restart automatically (“guard dog” system). This prevents a definitive bug in the event of significant interference owing to a storm and its electromagnetism. This device, although fitted with EMC compliant anti-interference systems, can if the connections between the fence wires are badly made and cause sparks, disturb radio transmissions. It is your responsibility to construct installations that are

“electrically correct” with good insulators and good connections. Do not hesitate to use the technology at your disposal such as « quick locks », etc...

Owing to its “automatic restart” mode, your Ultra-Low Impedance energiser should not suffer from bugs. However, if it does get a bug, disconnect it and then reconnect and it will start to work again

In the event of a serious fault, the words “FAILURERETURN SAV” will be displayed on the main screen. Return the device to your retailer. **DO NOT OPEN THE ULTRA LOW IMPEDANCE ENERGISER. THIS WILL INVALIDATE THE WARRANTY.**

Repairs can only be carried out at the factory where the energiser was manufactured given the equipment necessary for calibrating the computer in the event of certain parts being replaced, diagnostic tests, entering fault mode to determine the cause of the problem, etc...

RESPONSIBILITY

Our company declines all responsibility in the event of an accident following a change of state, of parts, of settings or of anything else inside the Ultra-Low Impedance energiser. **ANY INTERVENTION BY PERSONS WHO ARE NOT PART OF THE CLOTSEUL COMPANY IS PROHIBITED.**

USEFUL INFORMATION

Troubleshooting Tips

▮ Earth connection:

Always have a damp earth outlet, especially for powerful appliances.

Always separate the land from the home from least 10 m from the earth of the energizer.

Multiply the number of stakes at 4 meters from each other if the earth is not conductive.

Caution: there is always a presence of tension on the earth rod, a perfect earth does not exist, but the number of volts you note, is as much less online. It's your turn see if there will be enough tension left on the wire for keeping animals.

▮ Electrification:

Always use high voltage wire to carry electricity from the energizer to the fence wire.

If you cross a wall, pass through a sheath, in trees, etc., “high tension” wire obligatory.

Other wires with low insulation become pierced and create losses, they only support 1 000 V max.

▮ Insulators:

There are many of them, and they differ from each other depending on the type of conductor (rope, wire, ribbon etc.) as well as their method of fixing, insulator at the start or end of the line, in driver support, angle gear etc. More they are bigger, the more solid and insulating they are.

Avoid pieces of tubes, or low insulators of the range without anti-drip fins, their insulation power is reduced, which leads to losses over long lengths.

▮ Stakes:

The plastic stakes are used to limit the curve conductive wires, they are placed all about 4 meters.

For a fixed installation: you must put every 50 m or at each corner a wooden stake to securely tension the conductors, possibly adding a strut if they are heavy, and pull too much on the stake.

Plastic stakes will be preferred for mobile installations.

▮ Electric wires:

These include wires, ribbons, ropes, steel wires, etc.

Look at their technical characteristics. More the resistance "Ohms/meters" is low, better will be the conductivity, and the line losses minimized, then the size will be a function of the desired driver visibility.

The ribbons can be seen from afar for the equines which are running animals. Wires will be preferred for slower animals. The flexible wires are easily wound on winders, rigid wires are more suitable for permanent fences intended to remain in place several years.

In soft wires you can find copper (very good conductivity) and stainless steel (solidity), the larger the conductive wires, the greater the current passes, and the lifespan over time is all the more increased.

▮ Accessories:

Ask for a catalogue, many accessories will make installation easier, barrier handles to move to a place without disconnecting the power safely, cable connections, wires, tapes to ensure a spark-free and durable connection in the time. Knots and splices should be avoided, they oppose the proper flow of current as soon as that a little oxidation is created. Testers allow you to see if the voltage is indeed present at different locations on the fence line.

▮ Control:

To ensure good guarding, you must visit the line regularly, inspect the connections making sure there are no sparks because these create losses and degrade the small section conductors as well as the plastic of flexible wires. Remove all vegeta-

tion affecting drivers. Some insulators may become conductive, crack and create defects. Pick up the fallen wires.

▮ Security:

Any earth connection of an energizer must be 10 m from that of a house. Any device connected to the 230 V network must be under cover, including hybrid devices when used from this same 230 V network. You must indicate with the sign “caution electric fence” any installation on the edge of the road public, every 50 meters.

If you cross a telephone line, you must position yourself perpendicular to this, never in parallel and at a distance of 1m above or below.

For a high voltage line, never parallel, always cross in a way perpendicular to it.

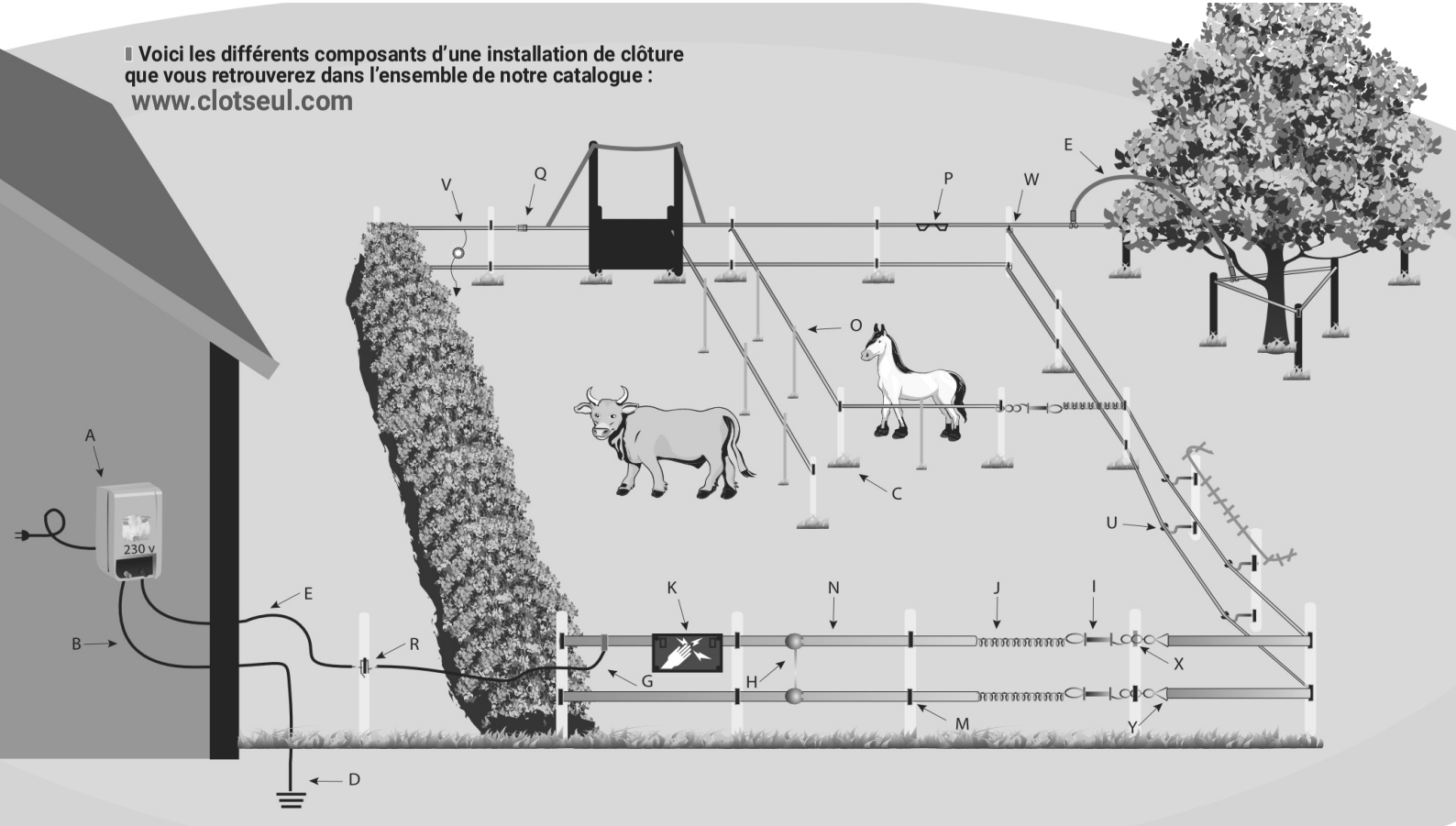
Correctly calibrate the energizer in relation to the size of the animal to be kept; a cattle station will hurt a lot (even if not dangerous).

Conversely, a post for a dog will do nothing to a large bovine and the guarding does not will not be insure.

Failure noted	Remedy
-No tension at the start of the line.	-Use special THT wire wherever there are no insulators. -Check presence of network or charged battery. -Disconnect the wire and fence and test between the two terminals with a screwdriver to cause a spark. (see following note).
-No spark between terminals when connect them FOR TESTING. (Ground wires/Fence unplugged)	-If no wire is connected, the fault comes from your energizer. (The HT indicator light remains off).
-No noise (tock/tac) from the energizer.	-Check power outlet or battery. Device broken down, return after-sales service.
-Device that beats more than 60 shots per minute.	-DANGER! Do not use anymore. To be sent to after-sales service.
-Voltage on the ground socket.	-Line losses, check the installation; no earth connection quite humid. -Pour water on the foot regularly.
-Tension at the start of the line and not at the end.	-Wire too small in relation to length, burnt connection or bad. -Used wire with cutting of stainless steel or copper conductors.
-Battery "test" light does not light up.	-Flat or HS battery, discharged battery, blown fuse, oxidized connections.
-UBI which often goes into “after-sales service failure” without reason.	-Mains voltage too low less than 210 Volts.
-Condensation in the battery energizer.	-Lack of ventilation, poor breathing of the device, place on dry ground, unblock the vents provided for this effect.
-Mains device which trips the counter.	-Unplug everything, check that it has not caught water, send to after-sales service. -Install the earth connection more than 10m from that of the House. Check for arcing along building structures. Do not reconnect, send to after-sales service FACTORY.
-Mains device which trips the counter.	-Use special fittings for wire, ribbon, rope to ensure good contact, if there is a spark, it is because there is bad contact.
-TNT reception disrupted. -Internet disrupted and clicking in telephone line.	-Sparks on fence installation, poorly shielded antenna installation. -Use of wide-band amplifier proscribe. -Eliminate sparks, use special fittings. Born not install an electrified fence in parallel with a telephone line over long lengths.
-Find a fault.	-Do not hesitate to put insulating handles for eliminate entire parts of installations in order to better locate faults. - Isolate circuits by removing the insulating barrier handle until the default, this will facilitate the search for the penalizing place.
-Poor contact with cord.	-The use of appropriate fittings is obligatory, never of nodes.

Voici les différents composants d'une installation de clôture que vous retrouverez dans l'ensemble de notre catalogue :

www.clotseul.com



A - Electrificateur/*Electric fence appliance*
B - Câble de terre/*Earthing cable*
C - Poteau fixe/*Permanent fencing post*
D - Piquet de terre/*Rust-protected grounding rod*
E - Câble spécial H.T./*Cable high voltage*
G - Câble de branchement clôture/*Fence connecting cable*
H - Câble de raccordement/*Connecting cable*
I - Poignée de barrière isolante/*Gate Handle*
J - Ressort galva/*Spring gate*
K - Pancarte de mise en garde / Warning-plate
L - Isolateur d'angle/*Corner insulator*
M - Isolateur/*Insulator*
N - Ruban, fil/*Tape, wire*
O - Poteau mobile/*Mobile post*
P - Tendeur fils/*Wire tensioner*
Q - Raccord câble/*cable connection*
R - Sectionneur de ligne/*Disconnector*
U - Isolateur écarteur/*Insulator spacer*
V - Testeur de ligne/*Line tester*
W - Isolateur départ ruban/*Insulator tape departure*
X - Isolateur ancre/*Anchor insulator*
Y - Triangle pour ruban/*Triangle strip*

Notice
Type : F15150424 / K1505JO224 /
K1045JO223 / K0316J1223 / K01011123.

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Fig. m - **Choix de l'électrificateur** / *Choosing the energizer*

Pas de végétation
No vegetation

Végétation faible
low vegetation

Végétation avancée
advanced vegetation

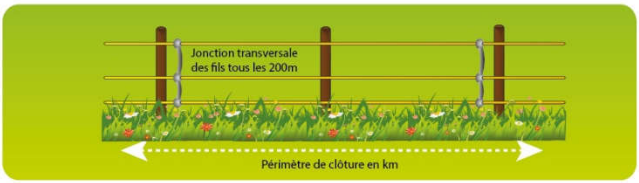
Végétation abondante
abundant vegetation

Fig. n - **Types d'animaux** / *Types of animals*

Animaux faciles à contenir / *Easy to keep animals*

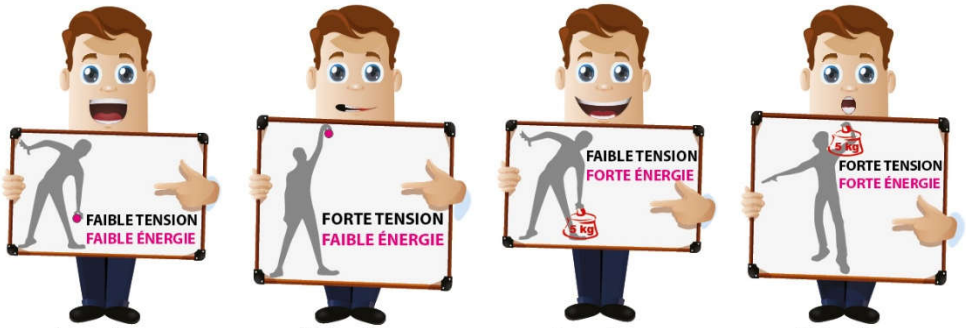
Animaux difficile à contenir / *Difficult to keep animals*

Fig. p - **Longueur de clôture** / *Length of fence*



On entend toujours par périmètre de clôture la longueur simple de la clôture
It always means a simple fence perimeter length of the fence

Fig. b - **L'énergie de sortie** / *The output energy*



Low voltage
Low energy

High voltage
Low energy

Low voltage
High energy

High voltage
High energy

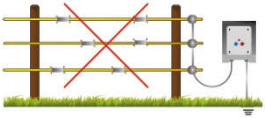
Sécurité / *Security*

IMPORTANT
IMPORTANT

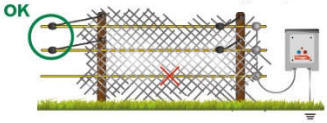
Interdiction / *Interdiction*

DANGER
DANGEROUS

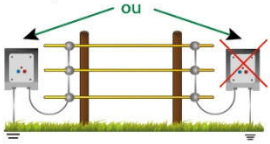
Barbelés sous tension
Barbed wire under tension



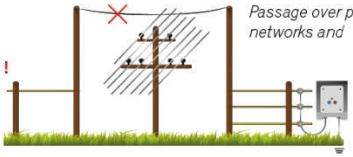
Écarter les fils sous tension de tout grillage
Move son turned on while grilling



Deux électrificateurs sur une même installation
Two fencers in one installation



Passage au dessus de ligne électrique et réseaux

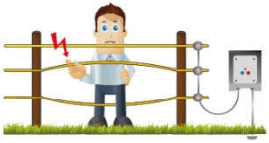


Passage over power line networks and

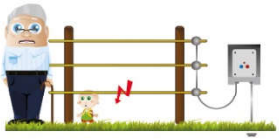
Électrification / *Electrification*

ATTENTION
WARNING

Ne pas passer entre deux fils sous tension
Do not pass between two son turned



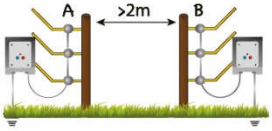
Attention aux enfants !
Attention to children !



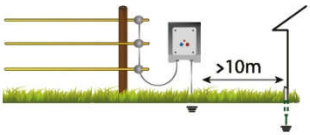
Danger / *Danger*

À RESPECTER
TO RESPECT

2m entre A et B minimum
2m minimum between A and B



Distance entre deux terres 10m minimum
10m minimum distance between two ground



Panneau d'avertissement tous les 50m
en bordure de lieu public
Warning sign every 50m along public place

OBLIGATOIRE
OBLIGATORY

150mm d'écartement entre les fils électriques et les barbelets
150 mm spacing between the son electric and barbed wire