CLOTSEUL

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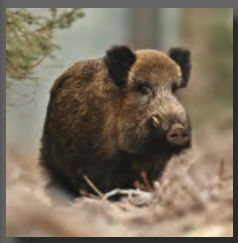
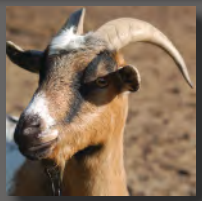
FABRICATION FRANÇAISE

Notice
Électrificateur
BATTERIE

MXT5J0123 / MST50S1500123 / BRG50S150123 / SC07J0523
version 1 avril 2024





LE RESPECT DE L'ÉLEVEUR

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

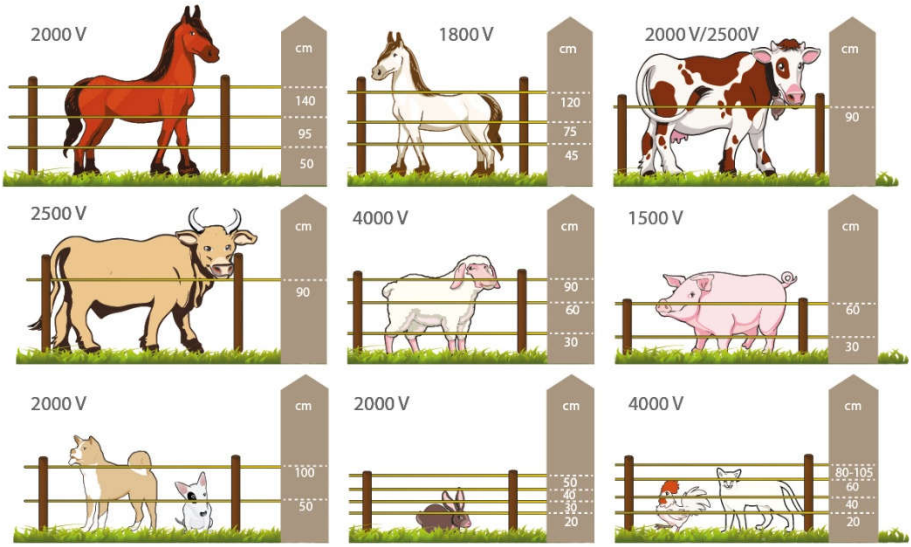


Fig. 2 - **Installation de la porte clôture électrique**
Installing your door electric fence line

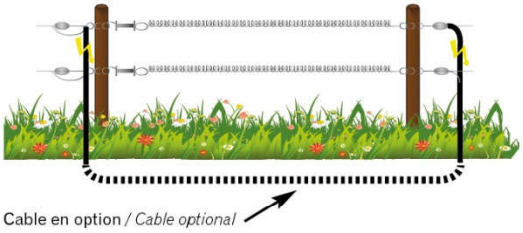


Fig. 3 - **Choc électrique**
Electric shock

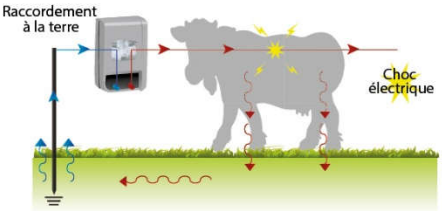


Fig. 4 - **Installation de l'électrificateur**
Installing the energizer

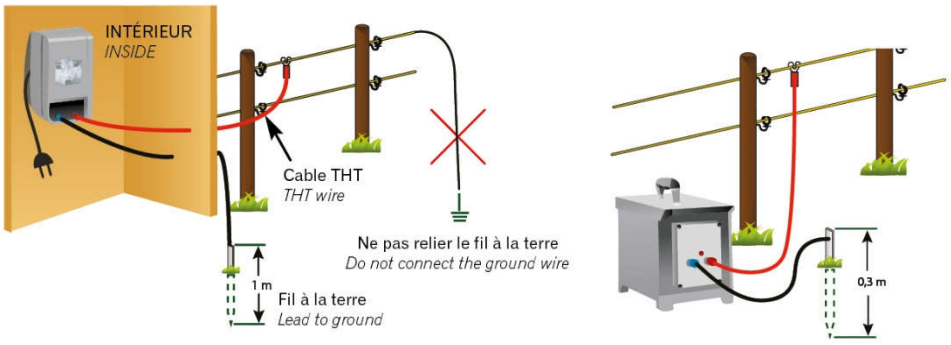


Fig. a - **Électrificateurs** / *Energizers*

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

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

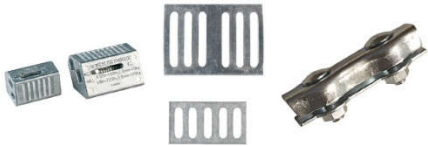


Fig. d - **Isolateurs** / *Insulators*

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

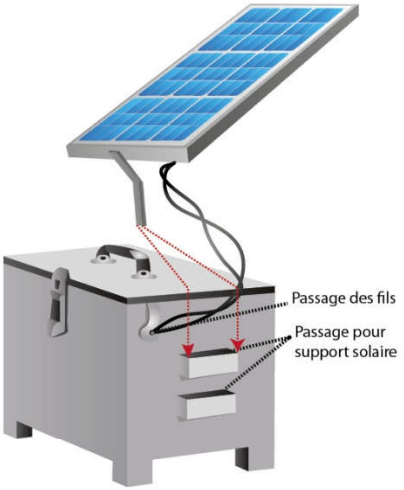


Fig. 20

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

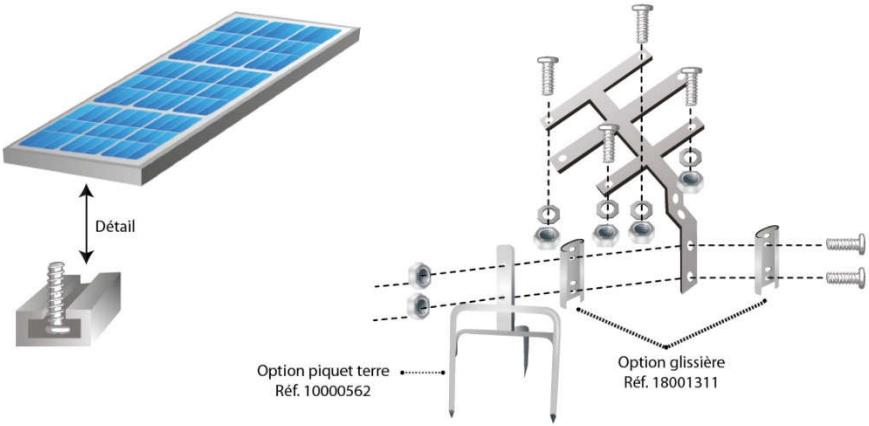


Fig. 30 - **Branchement standard**
Standard connection

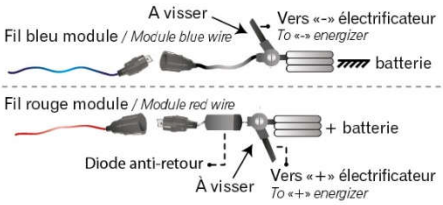
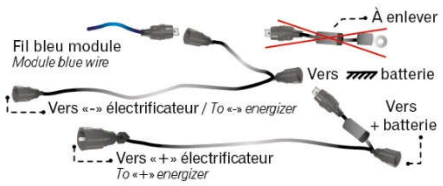


Fig. 50 - **Branchement ABS**
Connecting ABS



CLOTSEUL

Notice version 1 / april 2024.

Battery-powered electric fencing energizer

plomb ou gel 12Volts 27Ah minimum

Type : MXT5J0123 / MST50S1500123 / BRG50S150123 / SC07J0523

OPERATING INSTRUCTIONS

We thank you for choosing the 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 a battery with a nominal voltage of 12Volts.

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.

◗ This is a battery-operated device, the battery being charged outside the device.

◗ During the charging operation, the batteries should be placed in a well-ventilated area.

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: do not connect to equipment powered by the 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 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:

◗ 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.

◗ The energizer can be installed outdoors or under cover. 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.

Battery voltage decreases with use.

A battery accepts regular charging. The greater the number of amp-hours, the more autonomy will be long A battery recharges to 10% of its capacity, example: a 80 AH battery will be recharged at 8 amps. An automobile battery may be suitable but it tolerates deep discharges less well and repetitive. You should prefer the special battery slow discharge fence (does not have starting power) which is specially designed for the operating process electric fences. Never store a flat battery, especially in winter because it can then freeze. A battery self-discharges in the time,

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

recharge it from time to time or use a charger with a “floating mode” option.

▮ Safety during operation:

◗ Lightning can cause fires on electric fence systems and cause malfunctions. He can be useful to unplug the device from the installation if it is not used.

◗ 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.

For energizers in plastic box ABS:

By unclipping the two black plastic clasps on each side of the appliance, remove the cover. Insert the battery into the box of the device.

For energizers in metal boxes:

Raise the latch located on the side of the box galvanized of your energizer. Remove the cover. Insert the battery into the box of the device.

For all ABS plastic devices and metal:

Make sure the “test/off/on” switch is of course OFF. On the wires coming out of the cover or the box: Connect the red wire to the + terminal of the battery, and the black wire on the – terminal drums.

! The battery must be connected respecting the polarities..

The battery terminals should not be short-circuited.

Close the lid and clip the clasp(s) depending on the model.

On the red terminal, connect the wire that goes to the fence installation.

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

The button in the “test” position should turn on the LED “ACCU OK” if the battery is fully charged.

With the button in the “ON” position, the energizer becomes operational.

A dimmer potentiometer or switch (depending on model) allows you to choose the power in according to needs; between the “minimum” and “maximum” position depending on the length of line, also making it possible to reduce consumption as soon as the training period is over, the animals already accustomed to the fence...

The closer we get to the minimum position, the more the device is economical, which saves time recharge the battery.

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 and remember to replace the battery regularly to recharge it.

▮ Battery change or recharging:

Turn the energizer OFF. Lift the clips on each side of the case or open the “BATTERY” hatch of the device. Unplug them battery terminals. Take the battery out of the box. Replace a charged battery (see chapter Using your energizer).

! Never short circuit the battery terminals.

The battery must be recharged in accordance with follow the instructions supplied with your charger.

! Never charge the battery in the trunk of the energizer and choose a suitable location ventilated for this step.

▮ 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 adapted, by a qualified person and authorized. In the event of a malfunction of your energizer, please contact your authorized 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.

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, from a disposable battery or from a rechargeable battery, with or

without a solar panel, 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 overabundant 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.

• **Disposable and rechargeable batteries** *(fig. q)*

A disposable battery can only be used once and when it has run out must be replaced by a new battery. Disposable batteries cannot give as much power as a rechargeable battery and so are best used for small portable fencing equipment enabling weight and volume to be reduced.

A rechargeable battery is more expensive to buy, but quickly repays itself if well maintained (avoiding deep discharges and overcharging). It can be recharged many times without any problem. Rechargeable batteries have more power than disposable batteries and can power much more powerful energizers. For both types of battery, the higher the capacity in Amps/Hours (Ah), the greater the quantity of electricity stored. *See the section below*.

• 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.

Provide either a disposable or rechargeable battery according to the power mode of your energizer. The type of power is written on your energizer body. See the section on disposable and rechargeable batteries.

The simplest method without maintenance is to power your energizer from the mains. When powered by disposable or rechargeable batteries, you must make sure disposable batteries are replaced when they have run out or that rechargeable batteries are recharged regularly. A 45 Ah 12v battery lasts approximately 35 days if the device consumes 45 mA.

The higher the amp-hours (Ah) of the battery (12 volts only), the longer it lasts and the more the recharging is spaced out. “Saline” batteries are “low cost” and are not as long-lasting as alkaline batteries. The voltage of a saline battery gradually decreases as it is used. The voltage of an alkaline battery remains constant until the end of its life and it ensures optimum operation of your energizer until it runs out. Disposable batteries must not be recharged.

! Never recharge a stack, there is a risk of explosion.

A battery takes regular recharging. The higher the number of amp-hours, the longer the battery autonomy. A battery recharges at 10% of its rated capacity value, for example: an 80 Ah battery will be recharged at 8 amps maximum. A car battery may be suitable, but you should be aware that it will not take deep discharges; it therefore requires increased surveillance and regular recharging. A special fencing battery is to be preferred with a slow discharge (it does not have starter power) that is specifically designed for the operation of electric fences. Never store a flat battery, especially in winter because it can freeze. A battery becomes discharged over time, even if it is not used; recharge it from time to time, or use a charger with a “floating mode” option.

▮ 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

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.

INSTALLING THE SOLAR PANELS

All our 12 Volt fencing equipment can be solar operated.

You need to take advantage of this free energy that can prolong the usage time of your battery without having to recharge it. There will be a type of solar panel for each energizer according to its consumption. This does not mean that you will never have to recharge your battery again! Solar energy depends on the region, sunshine, temperatures, etc. and that varies from one year to the next. But it will give you a bit of a boost when you

need it most over the period from April to October. In excellent conditions, there will be no need to recharge during this period.

It is possible to have a system that only uses solar energy 24h/24h, 365 days per year. A specific calculation must be made according to your region and the obligatory use of a battery charge regulator to prevent your battery from being overcharged owing to an oversized solar panel. Ask your retailer for this calculation, he will be able to access our technical service.

WARNING!
Important safety instructions!

• Never connect the output wires from the module if they risk coming into contact with each other. (The module supplies energy as soon as there is daylight).

• Do not operate the panel near flammable gas, (charged batteries), solvents, vapours, etc.

• Dangerous explosive gases may form in the proximity of the battery if this is overcharged. The battery must therefore be installed in an aerated location.

• Pay attention to the polarity of the module, any inversion of polarity can seriously damage the solar module, the associated electronics and the battery, or cause short circuits. There may be a risk of burns caused by a short-circuit if polarity is not respected.

• Never make a short-circuit with the output wires from the solar module.

• Installing the solar module on your energizer will make the device more autonomous, but you must regularly check that the assembly is working correctly in order to ensure surveillance.

• In the event of a period of non-utilisation, disconnect the solar panel from the accumulator. Make sure you store an accumulator that will not be used for a while fully recharged (top up with a charger, if necessary). An accumulator that is stored almost empty for an excessive period of a few months will not recharge. Its warranty will be invalidated.

• Never use or operate your energizer with just the solar panel without connecting the battery, this risks seriously damaging your device.

▮ Operating description

Your module can be used without a charge limiting device or regulator since it is in the unique condition of being perfectly calibrated in relation to the energizer to which it is to be connected. Your energizer should also not be stopped for more than one day if it is in full sun without taking the precaution of disconnecting the two wires of the solar panel. This precaution will prevent the battery from being overcharged with the risk of considerably reducing battery life and its warranty.

All our modules are adapted to specific types of energizer according to their power. If you use a module with a lower power than that recommended, you will only obtain very mediocre results from your installation.

We recommend “module/energizer” self-compensation, i.e. a specific panel power for a specific energizer model, that will allow recharging and battery maintenance to be more spaced out. The installation will be relatively autonomous during periods of good weather, but it will still be necessary to recharge the battery when there is reduced sunshine and with negative temperatures. Let us remind you that a discharged lead acid battery can freeze and explode in negative temperatures.

If you want to make your installation more autonomous, this can be done by increasing the power of the solar module – either by connecting a solar panel that is more powerful in Watts, or by adding another module. In this latter case, it is obligatory to fit a charge limiting or the regulator device.

The charge limiting or the regulator device prevents the battery from overcharging when there is strong sunshine. It manages the battery voltage.

Do not hesitate to ask for advice from your retailer.

The standard kit supplied with your panel includes a red wire and a blue wire. On the red wire there is a terminal for receiving a “diode module”, consisting of a small black cylinder with a coloured ring sandwiched between two terminals. This part is the anti-return diode and must not on any account be removed. This diode prevents the battery from discharging in the solar module when the latter does not receive sufficient light. Removing this diode would cause the complete malfunctioning of the assembly.

Only connect this diode last, after carrying out the implementation procedure described below.

▮ Implementation

• With a standard lead battery, round terminals:

To ensure the best performance of your module, attach the panel to the specific support recommended by us if you have chosen this option.

Four attachment screws are contained in the sachet on the back of the panel for this purpose.

Then insert the support base into the back of the galvanised body in the cut-outs provided. No screwing or drilling is required. Pass the red and blue wires through the cut-out located on the back of the galvanised body at the top. *(See Fig. 10)*

For the ABS (plastic) battery body, remove the 5 cm by 5 cm square black plug situated over the device cover. Insert the panel support in the grooving. No screwing or drilling is required.

Pass the two solar panel wires through the V-shaped slot in the battery body. *(See Fig. 20)*

Your panel must be fixed at 45° from the sun and face due South. In this direction it will capture the most sun and therefore the maximum energy. Then connect the red wire (positive pole) to the anti-return diode, that has been disconnected from the solar panel module wire at the + terminal of the battery, having taken care to remove the screw on the spiral terminal in order to re-assemble on this same screw:

• the energizer + wire terminal with a round lug;

• the solar panel terminal with a round lug (terminal used for the anti-return diode).

Follow the same procedure with the blue "-" wire of the energizer. In this way, all the positive poles will be connected together and all the negative poles will be connected together.

A positive pole must not at any time be connected to a negative pole! Be particularly careful when connecting to the battery.

As with a vehicle, any inversion will cause a short-circuit with the risk of irrevocably damaging certain components such as diodes etc.

Now connect the larger spiral terminal of the red wire to the positive battery terminal. Then connect the smaller spiral terminal of the blue or black wire to the negative battery terminal.

Lastly, connect the red wire of the solar module to the diode that you have previously connected to therest of the system. *(fig. 30)*

If you have scrupulously followed the above instructions, your energizer will now be ready for operation.

• With a lead gel battery (device safe plastic) with faston or screw terminals:

Pass the red and blue wires through the V-shaped slot in the ABS body for the gel battery.

Your panel must be fixed at 45° from the sun and face due South. In this direction it will capture the most sun and therefore the maximum energy.

You must obtain a kit termed "OCEAN/SILVER solar adapter" in order to make all the connections.

Once you have this kit, remove the original anti-return diode from the red solar panel wire and connect the red cord from the kit fitted with a new anti-return diode in the place of the original diode. *(fig. 50)*

Remove the black cord fitted with a terminal with a round lug from the end of the solar panel wire and replace it with the black cord from the kit.

Take care to respect the polarities before proceeding to make the following connections. Any inversion of polarity is harmful to the battery, the solar panel and the wiring system (diodes etc.).

Then connect the red wire (positive pole) of your new assembly to the + battery terminal.

Connect the blue or black wire (negative pole) of your new assembly to the - battery wire.

You can now connect the unused red wire to the + male connector of the energizer, as well as the black wire remaining on the - connector of the energizer. *(fig. 6)*

The assembly is now ready for operation.

▮ Using a charge regulator

If you use a solar panel that is higher than 20W or if your panel is likely to remain in full sun while your energizer is in "stop" mode for long periods, it is necessary to use a charge regulator.

In this case, the solar panel is no longer directly connected to your energizer battery + wires together and - wires together), but is connected to the charge regulator. *(See the instructions for fitting the charge regulator)*.

▮ Solar panel trouble-shooting guide

• I often recharge my battery, about every 3 weeks:

IIt is very likely that your solar panel is no longer charging. You need to check it: leave your panel exposed in full sun disconnected from the battery and with no wire touching it. When empty, using a voltmeter in the position "continuous or DC voltage" you must obtain 20 Volts minimum. If you do, the problem is caused by your battery that no longer holds the charge. If you cannot obtain 20 Vdc, disconnect the anti-return diode and take the measurement again. If you obtain 20 Volts or more, your diode needs to be replaced. If you still cannot obtain anything, your solar module is faulty.

• My battery is flat; it does not recharge:

Your battery is at the end of its life. It has either been charged/discharged a significant number of times, is several years old or has undergone a deep discharge (it has been flat a long time). It will be impossible to make it work again, replace the battery.

• AS A GENERAL RULE

In all cases, check the condition of the spiral terminals connected to the battery. They must not be oxidised, if they are oxidised, they must be changed. This is because the contact between the battery terminal and the spiral is very important, otherwise your panel will be operating empty and the battery will never be charged by the panel. ALWAYS orient your panel towards the sun at an angle of between 30 and 45°, due SOUTH

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 vegetation 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.
-Tension at the start of the line and not at the end.	-Flat or HS battery, discharged battery, blown fuse, oxidized connections.
-Condensation in the portable 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.	-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 :

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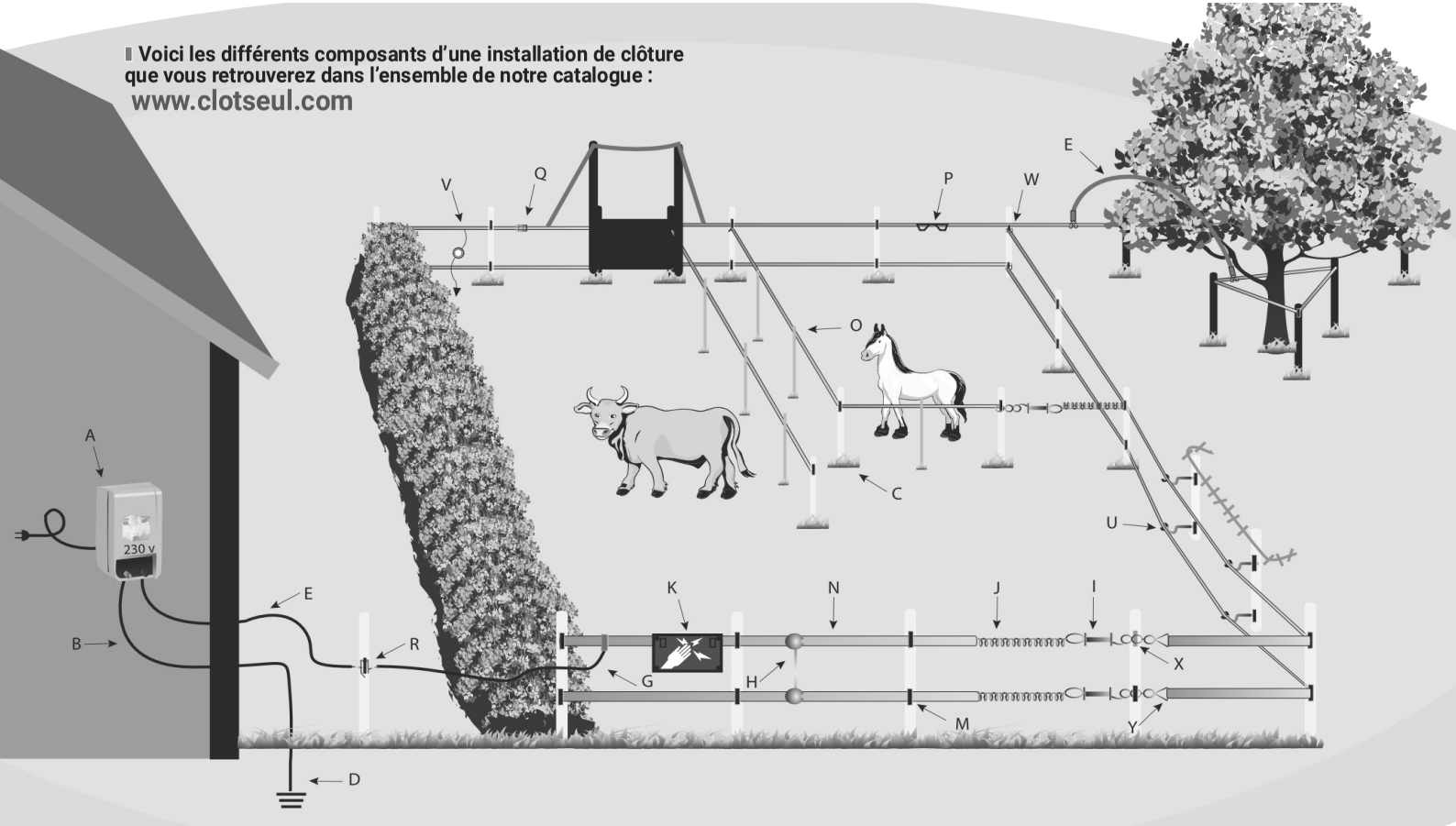

A - Electrificateur/*Electric fence appliance*
B - Câble de terre/*Earthing cable*
C - Poteau fixe/*Permanent fencing post*
D - Piquet de terre/*Rust-protected grounding rod*
E - Câble spécial H.T./*Cable high voltage*
G - Câble de branchement clôture/*Fence connecting cable*
H - Câble de raccordement/*Connecting 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 : MXT5J0123 / MST50S1500123 /
BRG50S150123 / SC07J0523.

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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

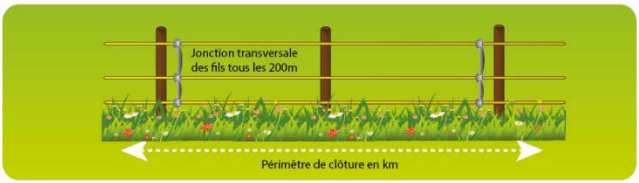
Végétation abondante
abundant vegetation

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

Animaux faciles à contenir / *Easy to keep animals*

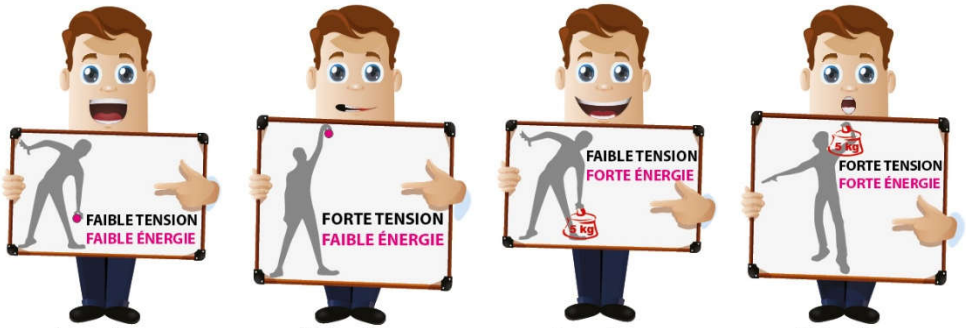
Animaux difficile à contenir / *Difficult to keep animals*

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

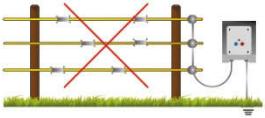
Sécurité / *Security*

IMPORTANT
IMPORTANT

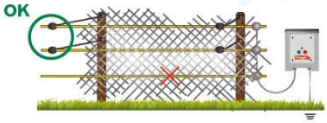
Interdiction / *Interdiction*

DANGER
DANGEROUS

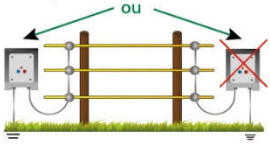
Barbelés sous tension
Barbed wire under tension



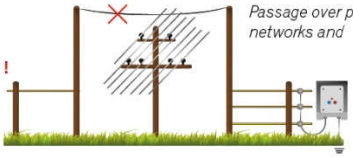
Écarter les fils sous tension de tout grillage
Move son turned on while grilling



Deux électrificateurs sur une même installation
Two fencers in one installation



Passage au dessus de ligne électrique et réseaux

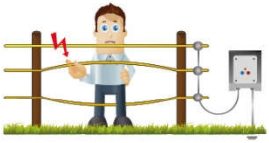


Passage over power line networks and

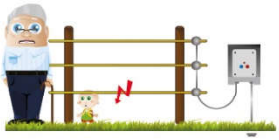
Électrification / *Electrification*

ATTENTION
WARNING

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



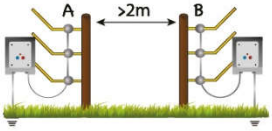
Attention aux enfants !
Attention to children !



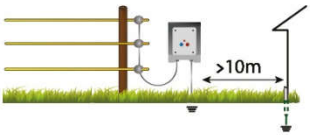
Danger / *Danger*

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