

Capacitor
An output capacitor is used to store direct current (DC) electricity between pulses through a fence. Alternating current (AC) can't be stored using a capacitor.

Corner posts
Sturdy wooden posts driven deep into the ground to provide extra support for the tension put on a fence line as it changes direction. Corner posts are not only used at corners, but also for gates and end posts.

Direct-discharge fence
A type of fence controller that does not require a grounding system to deliver an electrical shock. Direct-discharge fences are most effective on short, weed-free fences.

Distance ratings
A way of comparing the relative power of fence controllers. Ratings are based on a single strand of 17-gauge steel wire strung 36 inches above the ground under ideal, weed-free laboratory conditions.

High tensile
An affordable, long lasting electrified fence system that is an excellent choice for perimeter fences, providing a barrier to contain or exclude animals. These sturdy, permanent fences require braced corner and end posts in wood along with special insulators, hardware, and tools that maintain constant high tension on a metal wire.

Insulator
A nonconductive material (plastic or ceramic), typically used to offset fence wire from a fence post. Insulators prevent the current from traveling through the post and into the ground, short-circuiting the system.

Line posts
A post used to support electric or non-electric fence wire. Line posts support the fence line, and have far less tension put on it than corner posts. As a result, they can be made from a variety of materials, including metal, wood, plastic and fiberglass.

Pulse width
Pulse width refers to the duration of the electrical pulse produced by a capacitive discharge fence.

Resistance
Resistance is any force that resists the flow of electricity, consuming power from a circuit by changing electric energy into heat. Electricians measure resistance in ohms.

Solid state
Solid-state fence controllers deliver a medium amperage shock in pulses of medium duration. They are best used to control short-haired livestock, small animals, and pets where light weed conditions exist.

Temporary fencing
A one to three-strand electric fence system that is used for rotational grazing or other short-term uses. It typically uses step-in poly posts or rod posts, and a DC or solar operated fence controller for portability and flexibility.

Tensioner
A component used to tighten fence wires, typically polytape, to increase tension on a section of the fence line.

A pulsed electric current is sent along the fence wire, about one pulse per second, from an energizer which is grounded. When the animal touches the fence it completes the circuit between the fence and the ground and receives a short, sharp but safe shock. The shock is sufficiently memorable that the animal never forgets.

Because the electric fence is a psychological barrier, it does not require great strength to be effective. However, it must be well designed and constructed to absorb some pressure from animals, snow and wind. The energizer must have enough power for the length of the fence and for the animals being controlled.

- Gallagher's PowerPlus Energizers are the result of over four years of design and testing, providing a more powerful and reliable energizer with improved features.
- Solar-Powered Energizers are the logical choice for remote areas where there is no available power. A solar panel charges a battery by converting sunlight into electricity to keep the energizer operating day, night or during low sunlight periods.
- Gallagher's S17, S20 and S50 Energizers have a built-in solar panel and provide maintenance-free solar power operation. An ideal energizer for strip grazing.
- Portable Battery-Powered Energizers provide versatile, portable power for short term animal control. Solar options are also available with most of these energizers.

An electric fence is a psychological barrier that keeps farm animals in and wild animals out - even over long distances.



How It Works

Gallagher has a range of energizers suited to all animal management requirements. Electric fence systems invariably grow over the years to meet changing conditions or circumstances, so it's a good idea to select an energizer that will power the final system.

Types Of Energizers

Electric Fence Checklist

- ☐ Energizer / Fence Controller
- ☐ Solar Panels and Accessories
- ☐ Fence Testers and Monitors
- ☐ Grounding and Lightning
- ☐ Switches, Joiners and Tighteners
- ☐ Wire and Underground Cable
- ☐ Insulators
- ☐ Offset Brackets
- ☐ Gate Kits and Handles
- ☐ Posts and Accessories
- ☐ Post Stays and Clips
- ☐ Tools

Electric Fencing Project Guide



Answers & Low Prices Down Every Aisle SM

USES & BENEFITS

Animal control is perhaps the most widely recognized reason for electric fencing. Not only does it keep domestic animals and livestock contained, it has various other important uses, including:

- Keeping wild animals out
- Separating different groups of animals
- Allowing rationing of crops and pasture
- Fencing animals off from eroding areas, trees, rivers and roads

Electric fencing has revolutionized pasture management techniques and better pasture management means better profitability for farmers. Permanent or portable fences are used to subdivide pastures to ensure even distribution of manure over grazing areas. In this way, pastures are kept fresh, short and palatable which ultimately leads to increased milk and meat production.

Other key benefits of electric fencing:

- Affordable
- Easily constructed and maintained
- Durable, because of low physical contact
- Light weight and easily transported
- Easily modified
- Less animal hide and pelt damage
- Deterrent to trespassers and predators
- For convenient, economical animal control, improved pasture management and more profitable farming, a power fence system is the trusted solution.



Trouble Shooting

Step 1: Check the fuses

Some fence controllers do not have fuses. Look for a fuse holder located on the outside of the fence-controller cabinet. If there is no fuse holder, go to Step 2 . Unplug the fencer before replacing any blown fuses with 1-amp, 250-volt fuses. Plug the fence controller back in. If the fuses blow instantly, the fence controller needs service. If the fence controller operates for several hours before blowing a fuse, then go to Step 2 .

Step 2: Check the power source

Unplug the fence controller or disconnect the clamps from the fence-controller battery. Then use a fence tester on the outlet or the battery terminals. If you are not using a Zareba fence tester, please see our fence tester conversion charts to ensure meaningful voltage readings.

- A fence controller operating on 115-volt AC power must have a reading from 105 to 125 volts when tested.
- A 12-volt battery fence controller must have a minimum reading of 12-volts when tested.
- The 6-volt or 6/12-volt battery fence controller must have a minimum reading of 6 volts when tested.

If the voltage is different than what it should be, your fence controller might need service. If the voltage is adequate for the power source used, go to Step 3.

Step 3: Check the fence controller for output

Disconnect the fence line from the fence controller before checking. Use a voltage tester designed to test electric fence controller output. Again, if you are not using a Zareba fence tester, please refer to the fence tester conversion charts to ensure meaningful voltage readings. If the fence controller output is low, your fence controller needs service. If the output is OK, go to Step 4.

Most fence controller models should fall within the following ranges:

- Most solid-state AC and DC models: 8,000 to 10,000 volts
- Continuous current models: 1,000 to 1,200 volts
- Models powered by four D cell batteries: 3,000 volts
- 6-volt models: 6,000 volts
- 12-volt models: 8,000 volts
- Low impedance models: 9,000 - 14,000 volts, depending on the rating

Step 4: Check the fence installation

If the fence controller and power source are normal, the problem lies with the fence installation. Start by reconnecting the hot lead-out wire (disconnected in Step 3) to the fence terminal. Then disconnect the lead-out wire where it connects to the fence and check for voltage at the end of the lead-out wire. If the voltage is good, the lead-out wire is OK. If the voltage is low, replace the wire with Zareba hook-up wire rated at 20,000 volts. Do not use standard

600-volt electric wire. Next, reconnect the lead-out wire and disconnect any fences that run off the main fence. Check the voltage of the main fence line. If the voltage is low, the problem lies with it. If the voltage is OK, reconnect the other fences, checking voltage as you add each one. The voltage should remain steady or show a slight drop until you connect the section of fence causing the problem. Then the voltage will drop drastically or the fence will short out completely. You may have to test each section or strand of fence separately. Once you have determined the fence or section causing the problem, walk the fence line looking for shorts. Listen for telltale snapping sounds that indicate electrical shorting. Pay close attention to insulators and connectors, and look carefully at corners, gates, and areas where the fence runs close to other fences. To help locate shorts, poor splices, broken wires, and faulty insulators, walk the fence line with a transistor radio tuned to the highest frequency on the AM band and on high volume. The radio will click louder as you approach an arcing insulator.

Step 5: Check the grounding

A ground wire or rod giving a shock indicates a poorly grounded system. Make certain that your rod clamp firmly bites into the rod; do not use wrapped wire or hose clamps in place of a rod clamp. Ground rods need to be placed outside where the soil gets sufficient moisture. Rods must be galvanized steel or copper clad and driven to a depth of at least 6 feet. We recommend using 3 ground rods spaced 10-feet apart. Dry or sandy soils require better grounding systems for animals to receive a shock. Even 3 ground rods may not be enough for some locations. Extreme conditions may require a ground wire running parallel to the hot wire for the entire length of the fence. Connect the ground wire to the ground system of the fencer and also to ground rods every 1,300 feet along the fence line.

Helpful Tips

- Use a voltage tester to check your fence line every day. You'll want to know about any problems before the animals do.
- If you install your fence controller outdoors, make certain you cover it and protect all electrical connections from moisture.

- Use 20,000-volt hookup wire to connect the fence controller to the fence line; standard 600-volt wire lacks adequate insulation.



- Install your ground rods at least 50 feet away from any utility ground rods, buried telephone lines, or buried water lines. These may pick up stray voltage and deliver a shock to spigots and water tanks or cause interference with phones, televisions, or radios.
- Use only high-quality insulators and connectors. Cracked, poor-quality, and makeshift insulators (such as water hoses) will degrade the performance of your fence or cause it to fail completely. Do not connect electrified wire directly to wood or steel posts.

- Most damage to fence controllers results from power surges and lightning strikes. Zareba designs its fence controllers to withstand power surges caused from most lightning strikes. However, lightning is so powerful that nothing can give 100% protection. To reduce the chance of damage from lightning, lightning diverters and surge suppressors offer some added protection.

- If you know a severe thunderstorm is imminent for your area, you may wish to disconnect the fence controller from the power source and the fence line to prevent possible lightning damage.

- If you have long fence lines, keep a spare bag of each type of insulator on hand to quickly replace those that may become damaged.

- Use a ground-rod clamp to securely connect the ground wire to the ground rods. Do not use hose clamps or wrap wire around the rod.

Great For Many Applications



Types of Fences

The Best Electrical Fence Is One Designed Specifically For You

If this is your first fence project we recommend you refer to the Basic Fence Types chart below to get an overview of the four basic fence types and how they are suited for different animal control needs. Then ask yourself the 4 simple questions below so you understand your options and can better plan your fence. A well-thought out plan in advance will help you avoid problems later, and assure that your electric fence works as you want it to.

- 1) What type of animal(s) do you want to control?
- 2) Do you want to contain or keep out the animal(s)?
- 3) What type of electric fence do you need?
- 4) Why is electric fencing a cost effective option?

	Portable/ Temporary	Semi-Permanent/ Permanent	Permanent High Tensile	Horse-Sense Electric Fence System ®
Expected Fence Life	Short term, frequent moves	1-20 years	20-40 years	5-15 years
Ease of Installation	Simple, fast	Easy to moderate	Moderate, special tools required	Moderate
Animals Controlled	Cows, horses, pets, lawn and garden pests	Cows, horses, hogs, sheep, goats, exotics, deer, predators	Cows, hogs, sheep, goats, exotics, deer, predators	Horses
Best suited for	Temporary fencing, managed intensive grazing	Pastures, cross fences	Permanent perimeter installations	High visibility, horse pasture
Post type	Step-in posts, steel and rod posts, fiberglass posts	T-posts, rod-posts, U-posts	Wood posts, T-posts, U-posts	Wood posts, T-posts, U-posts
Wire type	Poly wire, poly tape, poly rope	Poly wire, poly tape, poly rope, steel wire	12-1/2 gauge high-tensile wire	Poly tape, poly wire, poly rope
Distance	Short	Unlimited	Unlimited	Unlimited
Features	Lightweight, reusable, easy to move	Workable with any configuration of posts and conductive wire	Longest life fence system available, minimal maintenance	Use with vinyl post sleeves for attractive, white-rail look, affordable

Frequently Asked Questions

Why use electric fencing over barbed wire or barrier-style fences?

Electric fencing is economical, easy to install and maintain, and it also offers better control than conventional fences. Barbed wire and woven wire fences are more likely to be damaged by animals, and animals are more likely to be damaged by them. Because animals seldom come into contact with an electric fence more than once it can last longer than conventional fences.

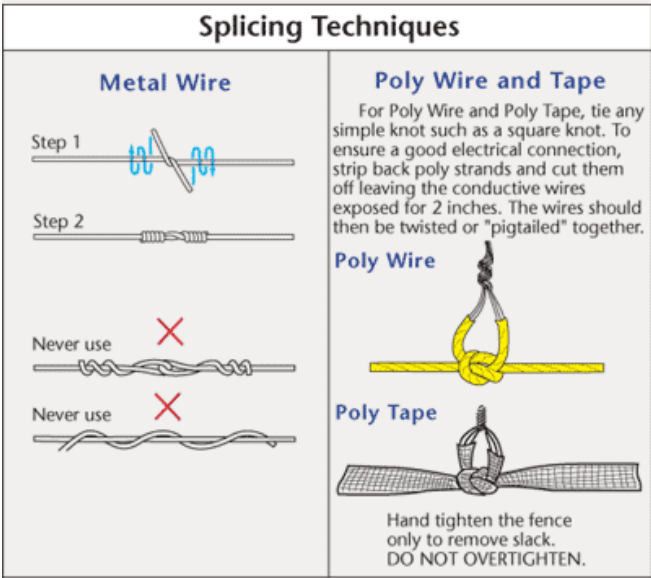
- Barbed or woven wire fence will last 7-12 years
- Permanent high tensile fence can last 25-40 years

How safe is electric fencing?

Electric fencing is very safe. There is at least one second between each pulse of electricity in all Zareba capacitive discharge controllers. This prevents prolonged shocking to animals or people. In addition, the short "on-time", normally 1/10,000 of a second, prevents heat build up. All Zareba fence controllers are designed to meet Underwriters Laboratories (U.L.) approval and specifications. UL tests fence controllers to make sure that they pass stringent safety measures. Having a short "on time" and then having the "off time" between shocks is what makes the fence controller safe to use.

How does electric fencing compare in cost to conventional fencing?

3-strand barbed wire or woven-wire: \$2,470 per mile
5-strand barbed wire: \$1,710 per mile
Permanent 6-strand electrified high tensile: \$1517 per mile
Temporary 2-strand 14-gauge electric fence: \$409 per mile



How much does a fencer cost to operate?

Fence controllers are very inexpensive to operate. Zareba AC-operated fence controllers only cost pennies per day. In fact, you will probably not notice a difference on your electric bill. Based on \$0.085 per kWh you can expect anywhere from \$0.20 a month for a small fence to \$2.00 for a 200 mile fence.

Why don't I get shocked when I touch my fence?

Electric fencing utilizes the animal to complete the circuit. When the animal touches the fence, the current goes through the animal's hooves into the earth, back to the fence controller ground system and then back to the fence controller. When the circuit is complete, that's when the animal feels the shock. Someone standing in rubber soled shoes touching a fence wire may not feel the shock because they're not earth ground. The same applies if standing on cement or wooden floors. Having very rocky, sandy or dry soil can also affect the amount of "shock" felt. Please refer to the Zareba installation manual for installing a "Ground Wire Return System".

How do I splice fence wire?

Consult the splicing diagram above.

Do I need to keep the weeds off my fence line?

Weeds will "pull" the voltage from the fence line to the earth causing low voltage or shorting on the fence. Low Impedance fence controllers are recommended where weeds will be a problem. They are designed to increase amperage or "joule" output to compensate for the voltage loss. Standard or High Impedance will lose voltage more dramatically and you may not have enough energy left on the fence line for adequate control of animals.