PATRIOT™

2016

ELECTRIC FENCE PRODUCT AND RESOURCE GUIDE




www.patriotglobal.com

CONTROL WHEN YOU NEED IT, WHEREVER THE TRAIL MAY TAKE YOU.

Checking voice mail, responding to e-mail, sitting in meetings, closing business deals, and returning calls on your cell phone while stuck in traffic during the morning commute. This is your life, Monday through Friday—and you thrive in it.

Your strong desire for success shows in your career and devotion to your family. The same can be said about your passion for life out of the office. You enjoy the peace and tranquility of living away from the city, the radiant view of an evening sunset, cattle grazing in the pasture, taking leisurely horseback rides, and having a few head of livestock you can call your own. You take pride in this.

Your animals are of paramount importance to you. After all, they are part of your family and way of life now. In order to relax and truly enjoy all that you have worked for, you need to have peace of mind that your animals are safely contained.

Why use Electric Fencing

An electric fence energizer (can also be called a charger or controller) takes electric energy from a power source and delivers it to a fence as pulses. These pulses are commonly referred to as the "shock" felt by any animal which touches an electrified fence. Unlike a conventional fence, an electric fence is a psychological barrier such that animals learn to respect the fence.

Electric fencing offers you a number of benefits over conventional fencing.

Animal safety	A safe and effective option to barbed wire or woven fences, electric fence systems also deter and protect against trespassers and predators.
Lower cost	Requires less labor and material than conventional fences (barbed or woven wire, wood rail, vinyl). Savings can also be achieved through reduced maintenance as animals are less likely to damage an electric fence as they usually don't touch it more than once. It is important to invest in quality components as these will also provide fewer maintenance problems and greater fence life-expectancy, increasing your value for money.
Ease of construction	Relatively simple and easy to build, electric fences can be installed quickly and with minimum tools saving you labor time and costs.
Flexibility	Wire spacing and fence design can be modified to control a variety of animals. Temporary electric fences also offer the benefit of being able to be moved quickly and easily.
Long life	Using quality components and materials, electric fences can last a long time with permanent electric fences lasting up to 40 years.

PATRIOT™ ELECTRIC FENCE PRODUCTS

Patriot™ electric fence energizers and accessories are built on the foundation of providing you the flexibility to enjoy your lifestyle with a sleek design that matches your need for simplicity, reliability, and performance - all at an outstanding value.

Patriot electric fence products are the result of over 70 years of experience from one of the world's leading electric fence manufacturers—Tru-Test Group. Throughout this brochure you will see our commitment to research and product innovation. You will also see our dedication to providing you with the knowledge, tools and support to help you build the best electric fence for your needs.

If you have any questions not covered in this brochure, please visit our website www.patriotglobal.com or contact your nearest Patriot retailer.

Patriot Promotes Safety First!
Before you begin installation of your electric fence, check the local zoning law guidelines for your area. Most importantly, check with your local utility companies to identify any buried cables or natural gas lines on or near your property - before you start any digging.

CONTENTS

Step One:

SELECT THE ELECTRIC FENCE FOR YOUR NEEDS

The best electric fence is the one that is suited to your requirements. The table below outlines the 3 main types of electric fence structures as a starting point to help you identify which fence type best suits your needs.

	Portable/Temporary	Semi-Permanent/ Permanent	Permanent High Tensile
Duration Of Fence Placement	Short—moves frequently	1–20 Years*	20–40 Years*
Ease Of Construction	Simple and fast	Easy to medium	Medium. Requires special tools
Recommended For	Horses, cows, pets, garden and small nuisance animals	Deer, horses, cows, sheep, goats, pigs, exotics (llamas, emus etc.), predators	Deer, cows, sheep, goats, pigs, exotics (llamas, emus etc.), predators
Containment Area	Short/small	Unlimited	Unlimited
Primary Need	Temporary containment, intensive grazing	Pastures and cross fencing	Perimeter fencing
Key Benefits	Easy to install, use and move	Can use any combination of post type and conductive wire	Offers greatest fence life. Requires minimal maintenance
Main Fence Components			
Post Type	Tread-in, rod, steel or fiberglass posts	Wood posts, T-posts, rod posts, metal pipes	Wood posts, T-posts, rod posts, metal pipes
Wire Type	Poliwire, tape, rope or braid	Poliwire, tape or rope, steel/aluminum wire	12½ gauge high tensile wire
Energizer Type	Solar, dual-purpose, AC (110 V), battery	Solar, dual-purpose, AC (110 V), battery	Solar, dual-purpose, AC (110 V), battery

* This time frame indicates the expected fence life using quality products and keeping the fence maintained.

Step Two:

EXCLUSION VS. CONTAINMENT FENCES

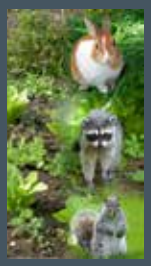
Traditional **CONTAINMENT** electric fence applications, such as those used to control cattle, horses, sheep and goats, are primarily designed to keep these animals in a limited area. These animals are usually domesticated and are somewhat predictable. Most importantly, you are **fencing these animals IN with their food source**.

Standard **EXCLUSION** fences – such as those designed to keep out bears, wolves, coyotes, deer, or feral hogs – are different from traditional electric fence applications. These animals are not domesticated, are highly unpredictable, and can be extremely dangerous. Most importantly, you are **fencing these animals OUT of their food source**. Electric fence is a terrific and an effective solution for EXCLUSION fences, but it is absolutely critical that you do it right – for you, your property, and the animals.

HERE ARE SOME BASIC GUIDELINES FOR STANDARD EXCLUSION FENCES

- ✔ **DO use an energizer with a MINIMUM of 0.5 OUTPUT joules (NOT stored joules). Wildlife agencies recognize 0.5 output joules as the minimum output energy required to control predators.**
- ✔ **DO research the type of fence design and conductor wire required for your specific application.**
- ✔ **DO use proper grounding and fence construction techniques when building the electric fence. Both of these elements are crucial to the success of the fence.**
- ✔ **DO solicit sound, professional advice before starting any project.**
- ✖ **DO NOT use inferior products. This is NOT the time to go cheap on your energizer, fence materials, and ground system just to save a few dollars. Remember what you are trying to protect and how much it's worth to you!**
- ✖ **DO NOT annoy the animal by using small energizers. The energizer must deliver a powerful enough shock to deter the animal. Small energizers just make the animal mad, making the animal try harder to get through the fence.**
- ✖ **DO NOT assume that all conductors (wires) are good or acceptable to use when controlling predators. Certain applications are fine with poli products, while others will require heavier gauge steel or aluminum wires.**

SMALL ANIMALS



EXCLUSION

Exclusion fences for small nuisance animals are primarily designed to keep them out of small flower gardens, landscaped areas and other similar areas around a house or business. Usually, a single wire fence placed 4-6" off of the ground will be sufficient. Make sure the wire is not too close that it actually touches the ground itself. In some cases, you may need to add a 2nd or 3rd wire (allow 4-8" vertical distance between each wire). Unlike standard exclusion fences, those designed for small nuisance animals can typically be used with any Patriot energizer depending on the total area to be fenced.

CONTAINMENT

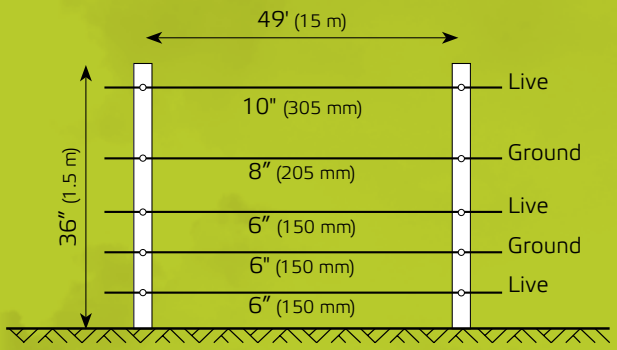
Containment fences for dogs are primarily designed to keep them in a residential yard. Usually, a single electrified wire placed 4-6" above the ground will be sufficient as most dogs will try to dig under the existing permanent fence. Make sure the wire is not too close that it actually touches the ground itself. If you want to add a 2nd or 3rd wire, allow 4-8" vertical distance between each wire. Unlike containment fences for livestock, those designed for dogs can typically be used with any Patriot energizer depending on the total area to be fenced.

! **CHICKENS: Electrified netting is a quick and easy solution for protecting range chickens from bears and other predators.** *(See the middle picture on Page 5.)*

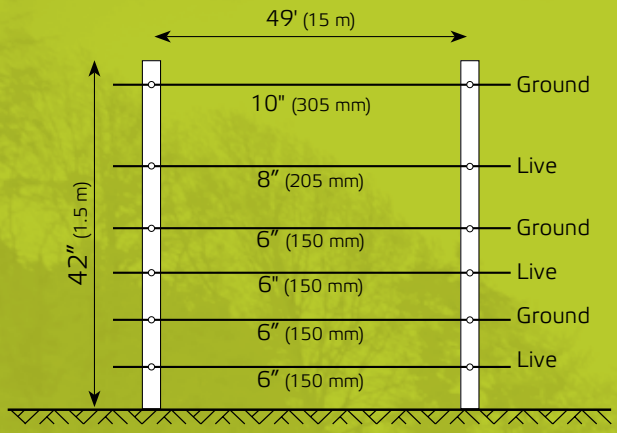
EXCLUSION FENCES

Also recommended for wolves and coyotes.

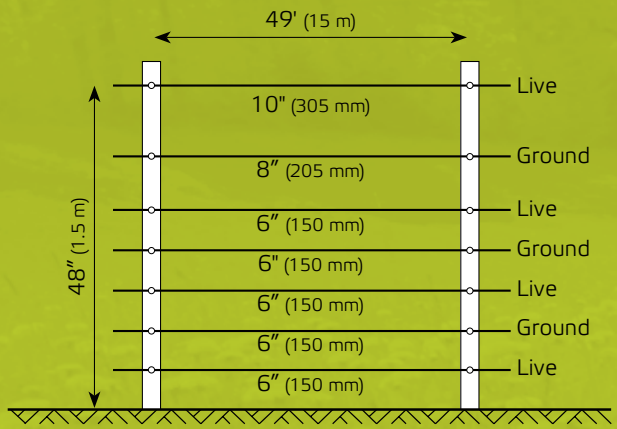
5 WIRE FENCE



6 WIRE FENCE



7 WIRE FENCE



KEY CONSIDERATIONS

- Size of the predator determines the wire spacing
- Jumping ability of the predator will determine height
- Maintain low wire spacings for predators known to dig
- As a general rule, all exclusion fences should use a hot/ground system
- NETTING can be an acceptable solution in some cases. Use "Pos/Neg" electrified netting in areas with poor grounding conditions. *See page 24 for a list of available netting products.*

COMMON USES

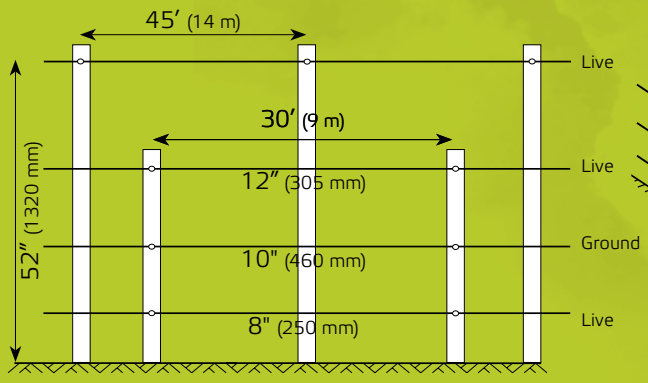
- Beehives
- Chickens
- Campsites
- Residential garbage protection

! Remember, you need an energizer with at least 0.5 OUTPUT joules to effectively control bears!

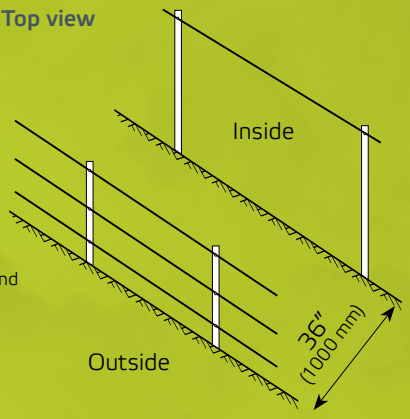
EXCLUSION FENCES

CROP PROTECTION FENCE

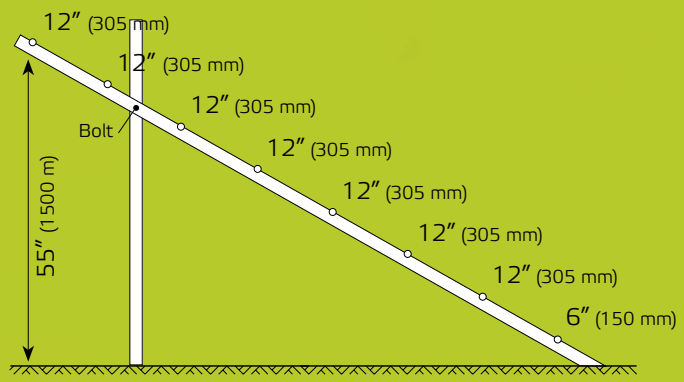
Front view



Top view



SLANT FENCE



FERAL HOGS

Most feral hog fences are similar in design to the crop protection fence diagram above, except there is no need for the inside fence. The 5 wire fence diagram on the previous page is also an acceptable solution. A hot/ground system is preferred for most feral hog fences.

KEY CONSIDERATIONS

The 2 fence system (i.e. inside and outside fence) with differing heights and the slant fence, achieve a 3-dimensional effect on the deer. This impairs the deer's ability to judge the height and distance they need to jump to clear the fence.

COMMON USES

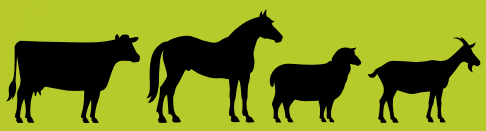
- Commercial row crop protection
- Food plots
- Gardens
- Certified organic operations

"Deer and hogs have always been a problem for us. Putting in a Tru-Test electric fence was one of the best business decisions we ever made. We now harvest fields that previously were too damaged from deer and hogs for us to get a crop. Plus, the fence has helped us to achieve the maximum benefit from our seed, chemical, and fertilizer inputs. In fact, the fence easily paid for itself within the first year."

Johnny and Crawford Henry – Cotton and Peanut Growers

! Make sure you have enough energizer to deliver an effective shock. Most applications require a minimum of 1 output joule per 10 acres.

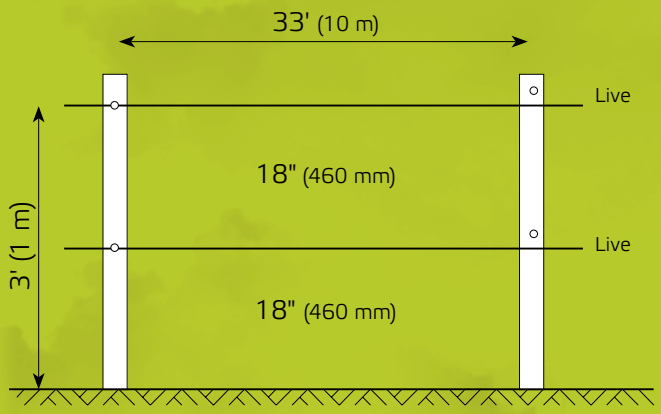
CONTAINMENT FENCES



Also recommended for pigs *(not feral hogs)* and other domesticated livestock.

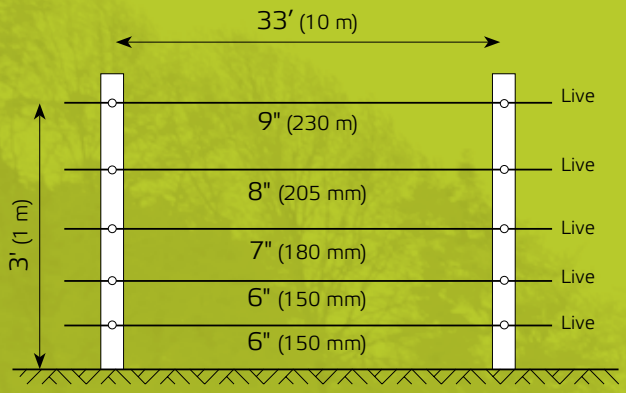
CATTLE AND HORSES

33' (10 m) spacing, posts only



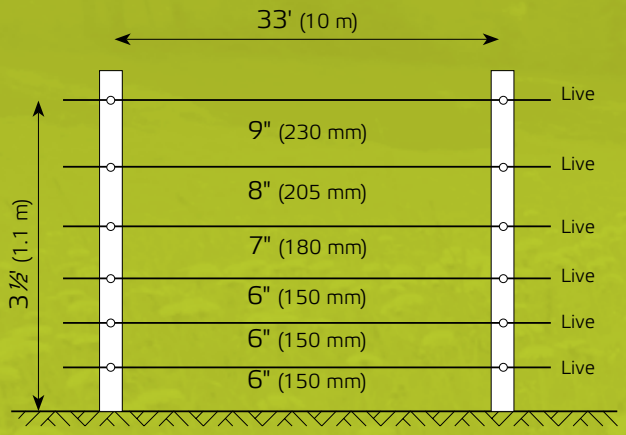
GOATS AND SHEEP

16 - 33' (5 - 10 m) spacing, posts only



6 WIRE BOUNDARY OR SUBDIVISION

33' (10 m) spacing, posts only



COMMON USES

- Small or large pastures
- Strip Grazing/Managed Grazing
- Fencing off hay bales
- Grazing wheat or corn fields

Animal Considerations

CONTAINMENT	Fence Voltage* (Recommended Minimum)	Characteristics/Tips
Beef Cattle	2,000–3,000 V	Bulls require a higher voltage as more aggressive.
Dairy Cattle	2,000 V	If kept separately, calves and heifers require lower wires and less spacing.
Horses	2,000–3,000 V	Intelligent, learn quickly, easy to control. A fence made of politape, wire or rope is less likely to injure if a spooked horse tries to run through it.
Llamas	4,000–5,000 V	Thick coats insulate from electric shocks so require higher voltage.
Deer and Elk	4,000–5,000 V	Spook easily and jump higher than most other animals. Above head height, electric high tensile fence recommended. Space wires close enough to prevent stepping through or heads between wires.
Sheep	4,000–5,000 V	Wool insulates from electric shocks so require higher voltage.
Goats	4,000–5,000 V	Some species have thick insulating coats requiring higher voltage. Tend to test fences—space wires low to ground and high enough to prevent being jumped.
Pigs	2,000 V	Start wires close to ground as rooting animal and finish at nose level.
Pets	700–1,000 V	Start wires close to ground.
EXCLUSION		
Wild Hogs	5,000 V	Aggressive and persistent. Deter from rooting by starting wires close to ground.
Wolves and Coyotes	4,000–5,000 V	Very thick, insulating fur requires high voltage. Can dig to reach prey so place first wire low to the ground.
Bears	5,000 V	Thick, insulating fur requires high voltage. Bait fences to train avoidance.
Deer and Elk	4,000–5,000 V	Move quickly and often run through fences unseen so make fence highly visible.
Small Nuisance Animals	1,000–2,000 V	Start wires close to ground as small and most species prone to digging.

NOTES:

» Fences enclosing both mothers and offspring require an electrified wire at the nose-level height of each.

» Please see predator voltage ranges if you want to keep both animals in and predators out. To cover all predators use a minimum voltage of 5,000.

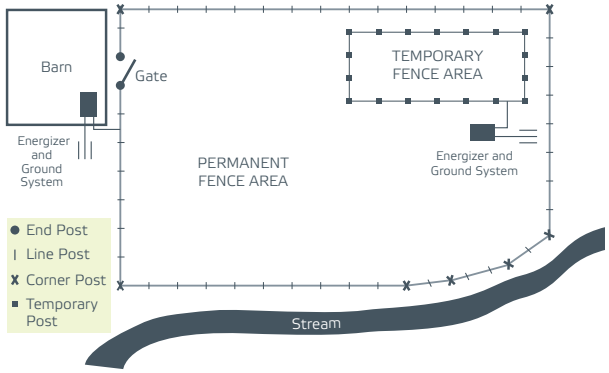
» * Voltage levels are impacted by vegetation on the fence line, length of fence and type of wire. To check voltage levels on your fence line use the Patriot Voltage Testers found on page 23.

Step Three:
PLAN YOUR ELECTRIC FENCE LAYOUT

Sketch a diagram and measure the distance of the area you would like to fence.

Grab a pencil and walk around the area you want to fence, measuring and sketching your layout. Also include in your plan:

- Location of buildings/ barns enclosed by or sitting adjacent to your fence
- Location of your fence energizer and electrical source (if required)
- Trees, hills, low and/or wet areas or other obstacles. If necessary, it is also a good idea to have your utility company mark any underground cables/lines that may be in the immediate vicinity
- Water supply and feeding locations
- Gate locations
- Fence termination points.



As you are sketching your layout consider these questions:

Are you going to use wood posts, steel posts, rod posts, etc.? Or is it just a temporary fence with pigtail or tread-in posts?

What type of gate(s) do you plan on using?

Thankfully, there's a good assortment of Patriot products (pages 13–28) to fit most of your electric fence needs. Along with your fence layout diagram, please use our handy checklist (page 9) to put together a list of items required to build your electric fence.

Step Four:

SELECT YOUR ENERGIZER AND ACCESSORIES

Electric Fence Checklist

Once you have sketched your fence you are ready to create a list of all the components and tools you require to construct your fence. To help you with this we have included a basic electric fence calculation and components list.

First, you need to measure the perimeter of the area that will be fenced. Once you have done this you will be able to work out the amount of fence wire you require. You do this by multiplying the length of your fence by the number of wires you plan to use. For example, if your fence perimeter is 500 feet and will have four wires, the length of fence wire you require is 2,000 feet. Please also see pages 30–32 for more things to consider when planning a permanent, temporary or solar electric fence.

Selecting an Energizer

Power Source

Select an electric fence energizer power source based on your fencing situation. For example a traditional AC (110 V) plug-in energizer is great if you need a very powerful energizer or have a very long electric fence. If you don't have access to an electrical outlet then a portable, battery or solar powered energizer would be best suited.

Power rating

You also need to select an energizer that will give you the power (energy) rating required for your electric fence. Measured as joules, Patriot energizers offer a range to suit almost every need.
More joules = more power.

Fence	
Fence Perimeter (ft)	
Fence Energizer (model #) **pg 12–18**	
Ground system (Underground cable (**pg 26**), joint/ground clamps (**pg 26**), ground rods (**pg 25**)) Choosing the Right Ground System **pg 33**	
Posts	
Calculations	
Spacing (ft) = distance between posts	
Number = perimeter feet ÷ spacing	
Corners/Gates/End Points = No. of posts required	
Type	
Line (Tread-in (**pg 24**), Pigtails (**pg 24**), T-post, Metal Pipes, Rod Posts)	
Corner* (Wood Post, T-post, Metal Pipe) *For Semi-permanent/permanent fences only	
Wire	
Calculations	
Total Length (ft) = perimeter feet x No. of strands	
Type	
Poliwire, tape, rope, braid **pg 24**	
Steel/aluminum **pg 27**	
Insulators pg 19–23	
Calculations	
Line = No. of strands x No. of line posts	
Corner = No of strands x No. of corner posts	
Type	
Line Insulators	
Corner Insulators	
Gate Handles/Accessories **pg 25**	
Fence Hardware pg 27	
General Accessories pg 26	
Leads and Hardware pg 26–28	
Management and Fence Tools pg 23	

PATRIOT ELECTRIC FENCE PRODUCTS

Energizers

Forming the heart of your electric fence system, energizers provide the source for the electric current that flows through the fence wire. The amount of electric current output (size) and power source AC (110 V), battery or solar differs across energizer products.

Your choice of fence energizer depends on the following key factors:

- Length of your fence
- Number of wires
- Power source
- Type of animal contained or excluded.

Things to Consider

Where should you install your energizer?

If you plan to use a 110 V plug to power your energizer, it should be placed inside a barn or shed near the power source.

Patriot Dual-Purpose energizers (P30, P20, P10, P5) offer both a weather-resistant case and a built-in clip-on-wire feature allowing them to be attached directly to the fence wire.

If you are using the Patriot SolarGuard™ 155, SolarGuard 50 or PS5, these are most effective if placed along the middle of the fence with the panel facing towards the South.

In all cases, refer to your energizer's user manual for specific installation instructions and always mount out of reach of children and animals.

Can I use more than one energizer?

Yes, you can use more than one energizer, but each must be on a separate fence system.

NEVER connect more than one energizer to the SAME FENCE.

Energizer Selection Chart

Model	Power			Animals Controlled / General Fence Range*
	110 V	BATTERY	SOLAR	
PMX1500	✓			600 Acres (200 miles)
PMX600	✓			300 Acres (100 miles)
PMX450	✓			250 Acres (80 miles)
PMX350	✓			200 Acres (65 miles)
P30	✓	✓	✓	200 Acres (65 miles)
P20	✓	✓	✓	165 Acres (50 miles)
PBX200		✓	✓	165 Acres (50 miles)
PMX200	✓			165 Acres (50 miles)
P10	✓	✓	✓	100 Acres (30 miles)
PBX120		✓	✓	100 Acres (30 miles)
PMX120	✓			100 Acres (30 miles)
P5	✓	✓	✓	60 Acres (15 miles)
PBX50		✓	✓	60 Acres (15 miles)
PMX50	✓			60 Acres (15 miles)
PB12		✓ OR D		40 Acres (10 miles)
PE10B		✓		40 Acres (10 miles)
PE10	✓			40 Acres (10 miles)
SolarGuard™ 155 Integrated Solar Energizer		12 V GEL CELL	BUILT - IN	40 Acres (10 miles)
PE5B		✓		20 Acres (5 miles)
PE5	✓			20 Acres (5 miles)
SolarGuard™ 50 Integrated Solar Energizer		6 V GEL CELL	BUILT - IN	12 Acres (3 miles)
PE2	✓			8 Acres (2 miles)
PS5 Solar Integrated Solar Energizer		4 V GEL CELL	BUILT - IN	8 Acres (2 miles)

* NOTE: Range claims are a general guide and based on single-wire, weed-free fences. Actual range claims depend on many factors including fence and farm conditions, livestock type and environment. Solar panel wattage numbers are general recommendations and may vary based on geography. Please consult your local electric fence professional to determine the best solar panel for your farm. All Patriot energizers are low-impedance.

SOLAR

Features/benefits:

Fully portable, 'All in One' compact design
Comes with an internal battery and solar panel, providing a convenient all-in-one energizer.

Solar powered
Energy efficient solar panel charges the internal battery to power the fence line.

Internal rechargeable battery
Solar power recharges the battery as required to support long battery life.

Flashing red light
Indicates at a glance the energizer is working and powering the fence.

Battery*
Battery saving mode maximizes battery life.

Low impedance energizer*
Designed to deliver power to the end of the fence even under heavy load e.g. foliage, undergrowth.

Multiple mounting options*
T-post and wood post mounting option.

Optimal voltage for maximum control*

Fully weatherproof*

SolarGuard™ 155

Large storage capacity
Enables up to 21 days operation without sunlight.
2 year warranty (includes lightning)
Includes fence lead set

SolarGuard™ 50

Large storage capacity
Enables up to 14 days operation without sunlight
2 year warranty (includes lightning)
Includes fence lead set

PS5

1 year warranty (includes lightning)

*SolarGuard 50 and SolarGuard 155 only

SolarGuard 155

Most powerful, portable Patriot solar energizer.

SolarGuard 50

Ideal for small range acreage settings.

PS5

Ideal for keeping small nuisance pests out, or for keeping small animals safely contained.

Quick Comparison Table

	DISTANCE RANGE [1]	PEAK OUTPUT ENERGY (UP TO)	PEAK STORED ENERGY (UP TO)	OUTPUT VOLTAGE (UP TO)	INTERNAL RECHARGEABLE BATTERY
SolarGuard 155 (819953)	10 miles / 40 acres	0.15 J	0.21 J	10.0 KV max, 3.7 kV @ 1,000 Ω	12 V
SolarGuard 50 (819951)	3 miles / 12 acres	0.05 J	0.07 J	8.5 KV max, 3.4 kV @ 1,000 Ω	6 V
PS5 (817369)	2 miles / 8 acres	0.04 J	0.06 J	7.4 KV max, 2.6 kV @ 1,000 Ω	4 V

Table represents typical values. [1] Actual range depends on many factors including fence and farm conditions.

Replacement parts

PART NAME / DESCRIPTION	**PART NUMBER**
SolarGuard 155 Replacement Battery 12V	01020
SolarGuard 50 Replacement Battery 6V	819777
PS5 Solar Energizer Replacement Battery 4V	818953
Fence Lead Set. Lead set for SolarGuard 155, SolarGuard 50 or PS5 Solar Energizer.	812229

DUAL-PURPOSE

Features/benefits:

Multiple power options
Dual-purpose feature allows energizer to run on 110 V plug or 12 V (deep cycle, marine type) battery*.

Solar compatible
Solar panel* charges a 12 V (deep cycle, marine type) battery* to power the Patriot Dual-Purpose energizer and fence line. Ideal for remote areas where AC (110 V) power is not available.

Low impedance energizer
Designed to deliver power to the end of the fence even under heavy load e.g. foliage, undergrowth.

LED indicator
LED indicator pulses when energizer is working.

Robust design
Easy, safe installation and good wire connection.

Easy mounting option
Unique, clip-on wire feature allows mounting on fence wire.

2 year full replacement warranty (includes lightning)

*Sold separately

P30

Most powerful energizer in the lineup with the greatest range and livestock control.

P20

Greater range for more acres and a larger number of livestock.

P10

Great choice for fencing a small number of livestock.

P5

Ideal unit for smaller applications, strip-grazing and portable fencing.

Quick Comparison Table

	DISTANCE RANGE [1]	PEAK OUTPUT ENERGY (UP TO)	PEAK STORED ENERGY (UP TO)	OUTPUT VOLTAGE (UP TO)	CURRENT CONSUMPTION	RECOMMENDED SOLAR PANEL
P30 (805153)	65 miles / 200 acres	3.0 J	4.5 J	11.0 kV max, 6.4 kV @ 500 Ω	300 mA	30 watt
P20 (803403)	50 miles / 165 acres	2.0 J	2.7 J	10.5 kV max, 6.0 kV @ 500 Ω	170 mA	20 watt
P10 (803402)	30 miles / 100 acres	1.0 J	1.4 J	9.7 kV max, 5.4 kV @ 500 Ω	90 mA	10 watt
P5 (803401)	15 miles / 60 acres	0.5 J	0.7 J	8.0 kV max, 4.5 kV @ 500 Ω	45 mA	10 watt

Table represents typical values. [1] Actual range depends on many factors including fence and farm conditions.

Replacement parts

PART NAME / DESCRIPTION	PART NUMBER
Power Cord. Replacement power cord for P30, P20, P10 and P5 Dual-Purpose energizers.	804129
12 V Leadset. Replacement battery leads for P30, P20, P10 and P5 Dual-Purpose energizers.	807396

AC (110 V)

Features/benefits:

Powered by 110 V plug

Low impedance energizer
Designed to deliver power to the end of the fence even under heavy load e.g. foliage, undergrowth.

Low maintenance design
Simple operation.

LED indicator
LED indicator pulses when energizer is working.

Robust knob design
Easy installation and good wire connection.

Multiple mounting options (PMX range only)
Easily mounts on wall, wood post or T-post.

Warranty (including lightning)
2 year full replacement – PMX range
1 year full replacement – PE2 – PE10

Quick Comparison Table

	DISTANCE RANGE [1]	PEAK OUTPUT ENERGY (UP TO)	PEAK STORED ENERGY (UP TO)	OUTPUT VOLTAGE (UP TO)
PMX1500 (825681)	200 miles / 600 acres	12 J	20 J	10.6 kV max, 8.4 kV @ 500 Ω
PMX600 (816869)	100 miles / 300 acres	6.7 J	9.9 J	10.2 kV max, 7.0 kV @ 500 Ω
PMX450 (816868)	80 miles / 250 acres	4.5 J	6.8 J	9.6 kV max, 6.5 kV @ 500 Ω
PMX350 (816867)	65 miles / 200 acres	3.5 J	6.4 J	10.2 kV max, 6.2 kV @ 500 Ω
PMX200 (816865)	50 miles / 165 acres	2.0 J	3.0 J	9.5 kV max, 5.7 kV @ 500 Ω
PMX120 (816864)	30 miles / 100 acres	1.2 J	1.7 J	10.2 kV max, 5.5 kV @ 500 Ω
PMX50 (816863)	15 miles / 60 acres	0.5 J	0.85 J	10.0 kV max, 4.8 kV @ 500 Ω
PE10 (819959)	10 miles / 40 acres	0.3 J	0.49 J	5 kV max, 3.5 kV @ 500 Ω
PE5 (819958)	5 miles / 20 acres	0.2 J	0.32 J	5 kV max, 3.2 kV @ 500 Ω
PE2 (819957)	2 miles / 8 acres	0.1 J	0.16 J	5 kV max, 2.8 kV @ 500 Ω

Table represents typical values. [1] Actual range depends on many factors including fence and farm conditions.

PMX1500

Most powerful energizer in the Patriot line.

PMX600

Designed specifically for large farms with a large number of livestock.

PMX450

Suitable for large farms.

PMX350

Provides more power for those slightly larger farm areas.

PMX200

Ideal for medium to large farms with a larger number of livestock.

PMX120

Suited for farms with small numbers of livestock.

PMX50

Ideal for smaller fence lines.

PE10

Ideal for fencing small properties up to 40 acres.

PE5

Ideal for fencing small properties up to 20 acres.

PE2

Ideal for containing pets and keeping out small nuisance animals.

Pet and Garden Kit (820963)

- All you need to build a quick, basic electric fence
- Great for yards, flower and vegetable gardens, and other similar areas
- Safely contains pets and deters small nuisance animals
- Kit includes: 110 V Patriot PE2 energizer, 10 x 28.5" posts with 4 preset clips on each post for quick installation, 100ft of green poliwire, ground rod and fence connectors, step by step instructions and sturdy box to store kit when not in use
- Can also be used with Patriot SolarGuard 50, PE5B or PE10B Battery energizers (sold separately)
- Accessories kits also available (sold separately):
  - Pet and Garden Accessories Kit (824168) – excludes energizer
  - Pet & Garden Kit – Extra Posts (824169)
  - Pet & Garden Kit – 100' Extra Poliwire (821816)

BATTERY

Features/benefits:

Portable, convenient energizer

Low impedance energizer
Designed to deliver power to the end of the fence even under heavy load e.g. foliage, undergrowth.

LED indicator
LED indicator pulses when energizer is working.

Warranty (including lightning)
2 year full replacement – PBX range and PB12
1 year full replacement – PE5B and PE10B

PBX Range

Battery
12 V (deep cycle, marine type) battery*. Battery saving mode maximizes battery life. Battery and fence lead sets included.

Solar compatible
Solar panel* charges a 12 V battery* to power the energizer and fence line. Ideal for remote areas where AC (110 V) power is not available.

Low maintenance design
Simple operation.

Robust covered knob design
Easy installation and good wire connection.

Multiple mounting options
Easily mounts on wall, wood post or T-post.

PB12

Simple set up
Clips directly onto fence wire for added convenience.

On/Off switch
Turns energizer off for easy relocation and battery saving.

Versatile power options
Can be powered externally (6, 9 or 12 V) or internally (4 x 1.5V D-size batteries)*

Automatic recharge†
Automatically uses excess stored energy to recharge itself thus extending battery life.

Optional tread-in stand (SA063)*
Allows energizer to be installed securely in any location.

PE5B / PE10B

Battery
Battery saving mode maximizes battery life. Battery lead set included.

Robust knob design
Easy installation and good wire connection.

* Sold separately
† When operating on fence with low loads

Quick Comparison Table

	DISTANCE RANGE [1]	PEAK OUTPUT ENERGY (UP TO)	PEAK STORED ENERGY (UP TO)	OUTPUT VOLTAGE (UP TO)	CURRENT CONSUMPTION	RECOMMENDED SOLAR PANEL
PBX200 (818352)	50 miles / 165 acres	1.9 J	2.7 J	10.4 kV max, 5.8 kV @ 500 Ω	170 mA	20 watt
PBX120 (818351)	30 miles / 100 acres	1.2 J	1.7 J	10.0 kV max, 5.5 kV @ 500 Ω	110 mA	10 watt
PBX50 (818350)	15 miles / 60 acres	0.5 J	0.67 J	8.2 kV max, 4.4 kV @ 500 Ω	50 mA	10 watt
PB12 (820947)	10 miles / 40 acres	0.12 J	0.16 J	8.0 kV max, 4.5 kV @ 2,000 Ω	7-25 mA	n/a
PE10B (819963)	10 miles / 40 acres	0.3 J	0.49 J	5.0 kV max, 3.5 kV @ 500 Ω	36 mA	n/a
PE5B (819962)	5 miles / 20 acres	0.2 J	0.3 J	5.0 kV max, 3.2 kV @ 500 Ω	24 mA	n/a

Table represents typical values. [1] Actual range depends on many factors including fence and farm conditions.

Battery

PBX200

Ideal for medium to large farms with a larger number of livestock.

PBX120

Suited for farms with small numbers of livestock.

PBX50

Ideal for smaller fence lines.

PB12

Ideal for small remote areas or quick temporary fences.

PE10B

Ideal for fencing small properties up to 40 acres.

PE5B

Ideal for fencing small properties up to 20 acres.

ACCESSORIES

Insulators

An important part of your electric fence system, insulators are used to fasten electrified wires to your fence posts. An insulator's job is to allow electricity to continue through the wire without any loss of energy to a post.

Made from materials that do not conduct electricity (mainly plastic or porcelain), a good quality, long life insulator is necessary for the performance, efficiency and longevity of your electric fence. If you are using a low impedance fence energizer you will also need insulators that provide excellent arcing protection due to the high energy output of these energizers.

How to select your Insulator

Available in many styles, firstly identify insulators that fit your post type. From these, select the right insulator that works with your selected wire and energizer.

Patriot Insulators

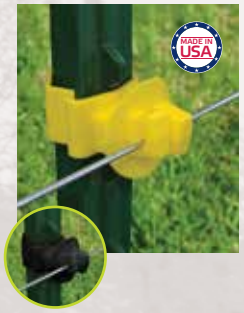
- Able to be used with low impedance energizers. Developed to complement Patriot's full range of energizers (all of which are low impedance)
- Made from quality plastic and porcelain materials that are UV stable and designed for long life
- Designed to be easily attached to compatible fence posts
- Deliver excellent arcing protection, reducing risk of shorts on the fence
- Full range of options to cover most fence post and wire types
- Patriot extender insulators protect existing fences by extending electric fence barrier from existing wires
- All Patriot insulators come with a **5 YEAR WARRANTY**.
- Tried and tested to ensure reliability and durability.

T-Post Insulators

Wrap Around T-Post Claw

Item: 820015 (Black) 820016 (Yellow)

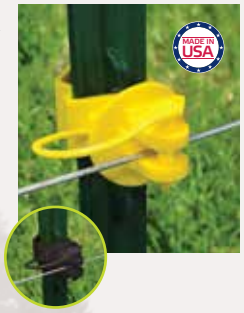
- Fence wire: Poliwire, polirope, steel/ aluminum wire
- Special wrap design secures insulator to post
- Available in: 25 per bag.



Wrap Around T-Post Pinlock

Item: 820017 (Black) 820018 (Yellow)

- Pinlock design allows easy removal of wires
- Fence wire: Poliwire, polirope, steel/ aluminum wire
- Special wrap design secures insulator to post
- Available in: 25 per bag.



Screw On

Item: 816064 (Black) 819047 (Yellow)

- Fence wire: Poliwire, politape, polirope, steel/aluminum wire
- Secure fit for all T-post sizes
- Available in: 25 per bag.

2 in (5cm) Wrap Around T-Post Extender

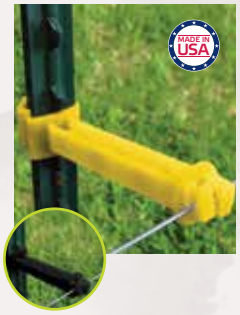
Item: 820028 (Black) 820029 (Yellow)

- Protects existing fence by extending electric fence wire 2 in (5 cm) off the T-post
- Fence wire: Poliwire, polirope, steel/ aluminum wire
- Special wrap design secures insulator to post
- Available in: 25 per bag.

This symbol indicates that these Patriot accessories are recommended for equine use.

5 in (13 cm) Wrap Around T-Post Extender

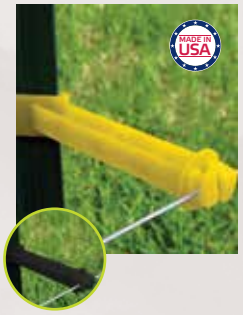
Item: 820021 (Black) 820022 (Yellow)



- Protects existing fence by extending electric fence wire 5 in (13 cm) off the T-post
- Fence wire: Poliwire, polirope, steel/ aluminum wire
- Special wrap design secures insulator to post
- Available in: 25 per bag.

5 in (13 cm) Back Side T-Post Extender

Item: 820035 (Black) 820036 (Yellow)



- Protects existing fence by extending electric fence wire 5 in (13 cm) off the back side of the T-post
- Fence wire: Poliwire, polirope, steel/ aluminum wire
- Special wrap design secures insulator to post
- Available in: 25 per bag.

T-Post Topper

Item: 814705 (White) 819728 (Yellow)

- Fence wire: Poliwire, polirope/braid, politape (½ in and 1½ in), coated/sighter wire
- Available: 10 per bag.

1½ in (40 mm) Tape

Item: 814717 (White)

- Fence wire: Politape (½ in and 1½ in)
- Available: 25 per bag.

T-Post Politape Extender

Item: 824734 (White)

- Quick and simple way to insulate politape when using T-posts
- Fits standard T-posts. Accommodates politape up to 1½ in (40 mm)
- Excellent arcing protection to reduce shorting
- UV stable and designed for long life
- Available in: 25 per bag.

T-Post Politape Corner/ End Strain

Item: 824729 (White)

- Use as a corner or end strain insulator
- For use on T-posts
- Suitable for use with politape up to 1½ in (40 mm) wide
- Available in: one per pack.

Jumbo Dual-Purpose Pinlock

Item: 814587 (White)

- For use on T, wood and metal pipe posts
- Pinlock design allows easy removal of wires
- Can be used with electric fence wire, polirope, coated wire or braid
- Excellent arcing protection to reduce shorting
- UV stable and designed for long life
- Available in: 25 per bag.

Safety Cap

Item: 828936 (White)

- Safely protects against scrapes from exposed T-posts
- Helps prevent injuries to people, pets and livestockt
- Strong, sturdy cap won't slip off post
- Easy to install, no tools needed
- Fits on most all T-Post styles and sizes
- Available in: 10 per bag.

GREAT FOR SCHOOLS, PLAYGROUNDS, PARKS, FARMS, AND MORE!

Rod Post Insulators

Screw On

Item: 820019 (Black) 820020 (Yellow)

- Fence wire: Poliwire, politape (½ in), polirope, steel/aluminum wire
- Fits posts ¼ in (6 mm) to $^{9}/_{16}$ in (14 mm) in diameter
- Available in: 25 per bag.

1½ in (40 mm) Tape

Item: 816066 (White)

- Fence wire: Politape (½ in and 1½ in)
- Fits posts ¼ in (6 mm) to ¾ in (19 mm) in diameter
- Available in: 25 per bag.

Wood Post Insulators

Wood Post Claw
Item: 820023 (Black) 820024 (Yellow)

- Can also be used with metal pipes
- Fence wire: Poliwire, polirope, steel/ aluminum wire
- Available in: 25 per bag.

Wood Post Pinlock
Item: 820033 (Black) 820034 (Yellow)

- Pinlock design allows easy removal of wires
- Can also be used with metal pipes
- Fence wire: Poliwire, polirope, steel/ aluminum wire
- Available in: 25 per bag.

2 in (5 cm) Wood Post Slant Nail
Item: 820030 (Black) 820031 (Yellow)

- Protects existing fence by extending electric fence wire 2 in (5 cm) off the wood post
- Fence wire: Poliwire, polirope, steel/ aluminum wire
- Available in: 25 per bag.

Jumbo Dual Purpose Pinlock
Item: 814587 (White)

- For use on T, wood and metal pipe posts
- Pinlock design allows easy removal of wires
- Can be used with electric fence wire, polirope, coated wire or braid
- Excellent arcing protection to reduce shorting
- UV stable and designed for long life
- Available in: 25 per bag.

5 in (13 cm) Wood Post Slant Nail
Item: 820026 (Black) 820027 (Yellow)

- Protects existing fence by extending electric fence wire 5 in (13 cm) off the wood post
- Fence wire: Poliwire, polirope, steel / aluminum wire
- Available in: 25 per bag.

Wood Post Square
Item: 820032 (Black)

- Fence wire: Poliwire, thin gauge steel/ aluminum wire
- Economical single nail installation
- Available in: 25 per bag.

4 in (10 cm) Plastic Insulator Tube
Item: 825017 (Black)

- Fence wire: steel/aluminum wire
- Economical way to insulate electric fence wire when using wood posts
- Available in: 25 per bag.

Ring
Item: 817201 (Black)

- Fence wire: Poliwire, steel/aluminum wire
- Use with Patriot Ring Insulator Tool
- Available in: 25 per bag.

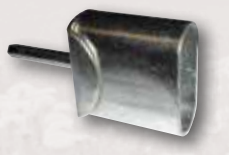
Jumbo Ring
Item: 814590 (White)

- Fence wire: Poliwire, polirope/braid, steel/aluminum wire
- Use with Patriot Ring Insulator Tool

Available in: 25 per bag.

Ring Insulator Tool
Item: 815042

- Designed for use with Patriot ring insulators
- Use with drill to install ring insulators into wood posts. Can also be used to remove insulators from posts
- Galvanized steel for corrosion resistance
- Sold individually.



This symbol indicates that these Patriot accessories are recommended for equine use.

Jumbo Wood Post Claw
Item: 814718 (White)

- Can also be used with metal pipes
- Fence wire: Poliwire, polirope/braid, steel/aluminum wire
- Available in: 25 per bag.

Wide Tape Corner/ End Strain
Item: 814593 (White)

- Use as a corner or end strain insulator
- For use on wood or metal pipe posts
- Suitable for use with politape up to 1½ in (40 mm) wide
- Available in: 2 per pack.

1½ in (40 mm) Tape Wood Post
Item: 814596

- Can also be used with metal pipes
- Fence wire: Politape (½ in and 1½ in)
- Available in: 25 per pack.

Corner Lag
Item: 824731 (Black)

- Use to continue fence line in corners
- For use on wood posts
- Suitable for use with most types of electric fence wire
- Available: 4 per bag

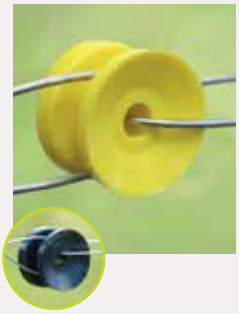
End Strain Insulators

End Strain
Item: 809981 (Black)

- For use with wood posts, metal pipes and T-posts
- Fence wire: steel/aluminum wire
- Effective end strain for termination of electric fence wire
- Available in: 10 per bag.

Corner Insulator
Item: 814715 (Black) 819054 (Yellow)

- For use with wood posts, metal pipes and T-posts
- Fence wire: Poliwire, steel/aluminum wire
- Economical solution to create corners in electric fences
- Available in: 10 per bag.



24 in (61 cm) Wrap Around
Item: 811413 (Black)

- For use with wood posts, metal pipes and T-posts
- Fence wire: steel/aluminum wire
- Economical solution to create corners in electric fences
- Available in: 10 per bag.

Chain Link Insulators

3½ in (90 mm) Chain Link
Item: 816065 (Black) 819056 (Yellow)

- Fence wire: Poliwire, steel/aluminum wire
- Extends electric fence wire 3½ in (90 mm) from chain link fence
- Available in: 25 per bag.

Pipe Clamp Insulator

Item: 828938 (Black)

- For use on pipes from 1 ½" to 1 5/8" diameter
- Great with most corral panels
- Works on vertical or horizontal pipe configurations
- Supports poliwire, ½" politape, or polirope up to 3" from pipe
- Available in: 10 per bag.

Porcelain Insulators

Porcelain Donut
Item: 812511 (White)

- For use with wood posts, metal pipes and T-posts
- Fence wire: steel/aluminum wire
- Creates corners and termination in electric fences. Use on fence ends, curves and corners
- Fire resistant
- Available in: 10 per box.

Bullnose Porcelain
Item: 814206 (White)

- For use with wood posts, metal pipes and T-posts
- Fence wire: steel/aluminum wire
- Effective end strain for termination of electric fences
- Fire resistant
- Available in: 10 per box.

Porcelain Screw-In Large
Item: 826051 (White)

- For use with wood posts
- Fence wire: Poliwire, polirope, steel/aluminum wire
- Suitable for use as a line or corner post insulator
- Fire resistant
- Available in: 15 per box.

Porcelain Screw-In Small
Item: 814208 (White)

- For use with wood posts
- Fence wire: Poliwire, polirope, steel/aluminum wire
- Suitable for use as a line or corner post insulator
- Fire resistant
- Available in: 25 per box.

Heavy Duty U Porcelain
Item: 814211 (White)

- For use with wood posts, metal pipes and T-posts
- Fence wire: steel/aluminum wire
- Effective end strain for termination of electric fence wires
- Fire resistant
- Available in: 10 per box.

Woodpost Porcelain with Nail
Item: 814213 (White)

- For use with wood posts
- Fence wire: steel/aluminum wire
- Effective as a line insulator
- Fire resistant
- Available in: 25 per box.

Management Tools

Single Light Tester
Item: 826863

- Designed for use with electric fence energizers
- Use to determine if fence has voltage
- Light shines if voltage is present on the fence
- Suitable for use with most types of electric fence wire
- Place probe in ground. Touch tip of tester to fence.

5 Light Tester
Item: 814217

- Use to measure and display approximate fence voltage
- Bright voltage lights and easy to read voltage indicator
- Suitable for use with most types of of electric fence wire
- Sold individually.

FenceAlert
Item: 804565

- Fence wire: Poliwire, polirope/braid, politape (½ in and 1½ in), steel/aluminum wire
- Light flashes if fence voltage is too low or there is a loss of power
- Can be seen up to a mile away
- Replaceable lithium battery can power up to 5 years on standby or 2 weeks of continuous flashing
- Sold individually.

Digital Voltmeter
Item: 806217

- Essential for accurate testing of fence and energizer ground system
- Robust design
- Reads from 200 V to 9,900 V.

This symbol indicates that these Patriot accessories are recommended for equine use.

Poli-Products

Patriot Poli-Products are compatible with Sentinel Heavy Duty Tread-In or Pigtail Tread-In posts and made from long life UV stabilized yarn colored white for greater visibility. All come with a 1 year UV guarantee.

Poliwire
Item: 821449 (White 660 ft/200 m)
822757 (White 1320 ft/400 m)

- For use with Sentinel Tread-In or Pigtail Tread-In posts
- 6 stainless steel conductors, flexible, woven for strength and easy handling.

Polirope
Item: 821450 (White 660 ft/200 m)

- For use with Sentinel Tread-In or Pigtail Tread-In posts and Equine Range insulators
- 6 strands of durable stainless steel conductors, tightly woven for superior strength.

Politape 1½ in
Item: 821453 (White 660 ft/200 m)

- For use with Sentinel Tread-In or Pigtail Tread-In posts and Equine Range insulators
- 6 stainless steel conductors, flexible, woven for strength and easy handling.

Politape ½ in
Item: 821451 (White 660 ft/200 m)
821452 (White 1320 ft/400 m)

- For use with Sentinel Tread-In or Pigtail Tread-In posts
- 6 stainless steel conductors, flexible, woven for strength and easy handling.

Poliwire Tensioner
Item: 820150

- For tensioning poli electric fences
- Fence wire: Poliwire, politape (½ in)
- Non conductive and easy to use
- UV stable for long life.

Fence Reel
Item: 824736

- Fence wire: Poliwire, politape (½ in)
- Holds 600 ft (180m) poliwire, 300 ft (90 m) ½ in politape
- Compact size
- Portable, easy to use
- Sold individually.

Tread-Ins

Sentinel Heavy Duty Tread-In
Item: 820013 (White) 820014 (Black)

- Fence wire: Poliwire, polirope, politape (½ in and 1½ in)
- Up to 8 positions for poliwire, politape (½ in and 1½ in) or polirope
- UV stable for long life
- Measures 49 in in total height (39 in height above ground).

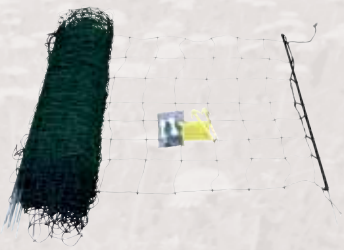
Pigtail Tread-In
Item: 806445 (Red)

- Fence wire: Poliwire, politape (½ in)
- Easy to move, steel step-in post with large foot and insulated top
- Measures 41 in in total height (34 in height above ground).

Netting

Electrified netting is a great option for a variety of temporary fence applications including campsites, free range chicken operations, and keeping small nuisance animals out of gardens – just to name a few. Each roll of netting comes with a detailed set of instructions and pictures to help guide you through the set up and storage process.

	LENGTH	HEIGHT	POST SPACING	NUMBER OF POSTS	NUMBER OF HORIZONTAL WIRES
Poultry Netting (828939)	164′	40″	12′	15	12
Sheep & Goat Netting (828940)	164′	35″	12.5′	14	8
Pos/Neg Netting (828942)	50′	40″	10′	6	9
Pos/Neg Netting (828941)	164′	40″	10′	18	9



Gate Handles and Accessories

When planning your electric fence layout, give thought to the location of your gates. Ideally, place where animals, people and equipment need easy access to pasture or farm buildings such as stables and barns. All Patriot Gate Handles and Accessories come with a 1 year warranty.

16 ft (5 m) Spring Gate
Item: 809983 (Yellow)

- Fence wire: Poliwire, polirope, steel/ aluminum wire, politape (½ in)
- For use with electric fence energizers, creates a quick and easy gate
- Fully insulated
- UV stable and designed for long life
- Spring and activator included
- Sold individually.

Gate Handle
Item: 817217 (Black)

- Fence wire: Poliwire, polirope, steel/ aluminum wire, politape (½ in)
- Fully insulated handle with non slip grip and galvanized spring used to electrify gate ways
- UV stable and designed for long life
- Sold individually.

Rubber Handle
Item: 828230

- Fence wire: Poliwire, polirope, steel/ aluminum wire, politape (½ in)
- Convenient solution to electrify gate ways
- UV stable and designed for long life
- Sold individually.

No Kick Handle
Item: 810838

- Fence wire: Poliwire, polirope, politape, steel/aluminum wire
- Fully insulated handle, used to safely hold electrified wires
- UV stable and designed for long life
- Sold individually.

T-Post Gate Anchor Insulator
Item: 814210

- For use on T-posts
- Economical option for building a gate between T-posts
- Ideal for use with poliwire, polirope, steel/aluminum wire
- Available in: 2 per pack.

Wood Post Gate Anchor Insulator
Item: 814212 (Black)

- Economical option for building a gate between wood posts
- For use on wood posts
- Suitable for use with poliwire, polirope, steel/aluminum wire
- Available in: 2 per pack.

Ground Rods and Clamps

Ground Rod Clamp
Item: 824726

- Use to secure underground cable to ground rod
- Suitable for use with most ground rods
- Sold individually.

6 ft Ground Rod
Item: SA110

- Fence wire: Underground cable
- Galvanized steel for long life
- Sold individually.

T-Handle Ground Rod
Item: SA111

- 30" (760mm) long galvanized steel ground rod with 6" (150mm) handle and tapered end
- Ideal for energizers and temporary fences that will be moved frequently.

3 Ground Rod Kit
Item: 826479

- Complete kit for building an energizer ground system
- Kit includes: 3 – 5 ft. galvanized steel ground rods, 3 ground rod clamps, 50 ft of steel wire, and instructions.

General Accessories

Warning Sign
Item: 809700 (Yellow)

- Clips onto electric fence wire to create clear warning for safety
- Installs on most electric fence wires
- Sold individually.

Lightning Arrestor
Item: 810837 (White)

- Helps to protect energizer in the event of lightning strike to the fence line
- Strong porcelain frame with steel connection points
- Sold individually.

Cut-out Switch
Item: 817216 (Black)

- Can be used with wood posts and metal pipes
- Use to isolate sections of fence
- Stainless steel fittings for positive non-corrosive contact
- Sold individually.

Underground Cable 50 ft (15 m)
Item: 809731 (Black)

- Use as a lead out wire to connect your energizer to electric fence wires
- Double insulated with 12.5 gauge galvanized wire
- UV stable for long life
- Available in: 50 ft roll.

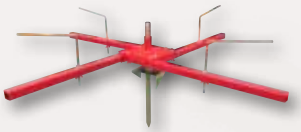
Fence Lead Set
Item: 821229

- Use to connect energizer to fence wire and ground system
- Sold individually.

Jumper Leads
Item: 810836

- Fence wire: Poliwire, polirope/braid, politape (½ in)
- Use to ensure quality connections in temporary fencing
- Sold individually.

Economy Spinning Jenny
Item: 823827



- Standard spinning jenny
- Non-wheel, pivots on a pen
- Steel spike with tapered point
- 4 adjustable steel arms
- Works with all common wire and coil sizes
- Sold individually.

3-Hole Wire Twister Tool
Item: 824732

- Use to twist fence wire several times at the end of fence line for a solid connection
- Suitable for use with up to 8 gauge wire
- Sold individually.

Hi Tensile Wire Cutter
Item: 814237

- Cuts most fence wire, including high tensile wire
- Suitable safety glasses must be worn
- Sold individually.

Brace Pins
Item: 814218 (5 in / 13 cm)
814219 (10 in / 26 cm)

- Secures horizontal brace post to upright brace posts in corner and brace post assemblies
- For use with wood posts
- Galvanized for rust resistance and long life
- Available in: 5 per box.

Joint Clamp
Item: 809984

- Fence wire: Underground cable, steel/ aluminum wire
- Holds multiple fence wires or underground cables to provide electrical connection
- Solid zinc for long life and excellent conductivity
- Available in: 5 per bag.

Fence Hardware

Strainers

Patriot Strainers are used to increase tension on medium to high strain fences. Patriot Strainers can be added to your electric fence without cutting wire or used to join wire. Rust resistant and easy to use, Patriot strainers are designed for long life and come with a 1 year warranty.

Spring Clip Strainer
Item: 809813

- Fence wire: steel/aluminum wire
- Available in: 10 per bag.

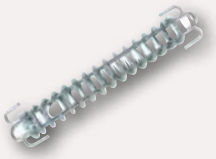
In Line Strainer
Item: 825247

- Use to tighten existing steel/aluminum wire fencing
- Can be added to fence without cutting wire
- Suitable for high strain conditions
- Available in: 5 per pack.

Strainer Tensioner Handle
Item: 814209

- For use with Patriot Spring Clip Strainer
- Sold individually.

Economy Compression Spring
Item: 824730



- Helps properly tension wire on permanent fences
- Made of high quality zinc-plated steel
- Sold individually.

Crimping Sleeves

Joins high tensile wire strands together. Use Patriot 4 Slot Crimp Tool to crimp.

1-2 Crimp Sleeve
Item: 814231 (25/PK)

- For use with 14 to 16 gauge wire.

3-4 Crimp Sleeve
Item: 814234 (10/PK)

- For use with 10 and 11 gauge wire or 14 and 15 gauge barbed wire.

3-4 Crimp Line Tap
Item: 814236 (10/PK)

- For use with 12.5 to 14 gauge wire.

2-3 Crimp Sleeve
Item: 814232 (25/PK)
814233 (100/PK)

- For use with 12.5 gauge wire.

4-5 Crimp Sleeve
Item: 814235 (10/PK)

- For use with 9 to 12.5 gauge wire or 12.5 gauge barbed wire.

4 Slot Crimp Tool
Item: 814220

- For use with Patriot Crimp Sleeves
- Sold individually.

Aluminum/Steel Wire

17 gauge steel wire, 100 ft Item: 828930

17 gauge aluminum wire, 100 ft Item: 828929

17 gauge aluminum wire, 250 ft Item: 828931

17 gauge aluminum wire, 1320 ft Item: 828932

17 gauge aluminum wire 2640 ft Item: 828933

14 gauge aluminum wire, 1320 ft Item: 828934

14 gauge aluminum wire, 2640 ft Item: 828935

Equine Hardware

Energizer to Wide Tape Connector
Item: 814702

- Use to connect politape to energizer
- Suitable for use with politape up to 1½ in wide
- Sold individually.

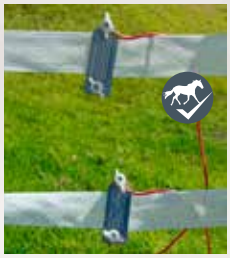
Energizer to Rope/Braid Connector
Item: 814709

- Use to connect polirope or braid strands to energizer
- Suitable for use with polirope or braid
- Sold individually.

Rope to Rope Connector
Item: 814708

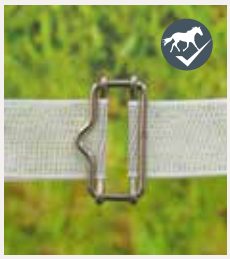
- Allows the electricity from one polirope or braid strand to be transmitted vertically to the polirope or braid strand below
- Suitable for use with polirope or braid
- Sold individually.

Tape to Tape Connector
Item: 814822



- Allows the electricity from one politape strand to be transmitted vertically to the politape strand below
- Suitable for use with politape up to 1½ in wide
- Sold individually.

2 in Tape Buckle
Item: 824727



- Use to join or splice politape
- Angled end can be used to connect politape to gate handle
- Suitable for use with politape up to 2 in wide
- Available in: 3 per pack.

Braid/Rope Clamp
Item: 814599

- Use to join polirope and braid
- Suitable for use with polirope or braid
- Available in: 3 per pack.

½ in Tape Buckle
Item: 824725

- Use to join or splice politape
- Angled end can be used to connect politape to gate handle
- Suitable for use with politape up to ½ in wide
- Available in: 3 per pack.

Step Five:
INSTALLING YOUR FENCE

Now that you have selected your energizer and accessories, you need to build your fence.

Installation Tips

Wire tension

Electric fencing provides a psychological barrier rather than a physical one, so there is no need to excessively tension wire. Heavy strainer assemblies are not required either, reducing the overall cost of construction. Electric fence wire should be tensioned to 200 lb. By comparison, conventional fence wire should be tensioned to 340 lb. The tension of each wire can be measured using a tension meter.

RFI (Radio Frequency Interference)

Many farms suffer from RFI. This often results in poor radio reception and an annoying ticking noise on the telephone line. Most Patriot energizers are fitted with special components and advanced circuitry that significantly reduces the levels of electrical emissions that might otherwise affect adjacent electrical equipment.

Animal training

One method to train animals to respect electric fencing is to use a small, well-fenced holding paddock. Divide the holding paddock using your Patriot energizer and poliwire. Introduce the untrained livestock to the paddock. The animals will quickly learn to avoid the electric fence barrier.

Mixing metals

Avoid using different metals in your electric fence. In damp conditions, when an electric current passes through the differing metals, electrolysis will occur. For example, using stainless steel ground rods and aluminum lead out wire will cause problems. In a short space of time, the aluminum will disintegrate. If possible, keep the wire joints above the soil to improve airflow and reduce electrolysis. Seal the wire joints with thick paint, epoxy or tar to keep moisture away from the joint area. Using identical metals in your electric fence will avoid problems with electrolysis altogether.

SOLAR FENCING GUIDE

Harnessing free energy from the sun, a solar powered electric fence requires no grid connection providing an economical choice for fencing small areas and is the ideal solution for remote locations. It can be used in a variety of situations from containing livestock to keeping wildlife out of garden areas and preventing pets from wandering.

How does it work?

A solar panel charges a battery by converting sunlight into electricity which is then used to keep the energizer operating 24 hours per day. Patriot offers a range of energizers that are compatible with solar energy (pages 14,17) as well as integrated solar systems (page 13).

What you will need?*

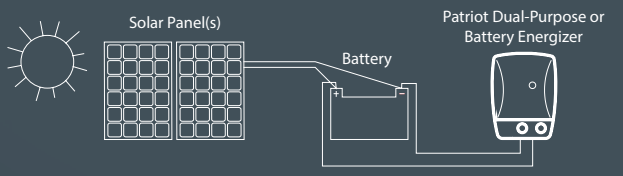
- **Energizer**—Select your energizer based on the area you need to fence. It is important that you have adequate power or you risk weak spots in your fence which could allow animals to escape or enter.
- **Battery**—Stores the energy harnessed by the solar panel. Patriot Dual-Purpose and PBX Battery range energizers are designed to run with 12 V (deep cycle, marine type) batteries (sold separately). The size of the 12 V battery must suit the current consumption (mA) of your chosen energizer. See the quick comparison tables (pages 14 and 17) for the current consumption (mA) of your chosen energizer. The 12 V battery must also have sufficient storage capacity to power the energizer during periods of reduced sunlight (for example, in cloudy weather). *Consult energizer user manual for recommended battery type.*
- **Solar Panel**—Captures and processes light from the sun. Select your panel(s) based on the power of your energizer and battery system. Note: larger energizers and battery systems require larger solar panels.
- **Regulator**—An important component where external solar panels are connected to battery energizers. It limits the voltage to prevent overcharging of the battery.
- **Grounding**—As with other types of electric fence systems it is important to ground your solar electric fence (pages 33–34).

** Contact your local Patriot retailer for assistance in selecting the right solar fencing system for your needs.*

Where to place your Solar Energizer?

We recommend placing your solar energizer in the middle of your fence or area with unrestricted access to sunlight. When selecting a suitable location for your solar energizer it is **very important** to consider the frequency of inspection, ease of access for maintenance, environment and animal damages, security from human intervention, and the proximity of the solar energizer to an appropriate ground system.

NOTE: Face your SOLAR PANEL towards the noontime sun—due south in the northern hemisphere.



PERMANENT ELECTRIC FENCING GUIDE

Converting a barbed wire or woven wire fence

Do you already have a good barbed wire or woven wire fence, but want to make it electric?

Note: You should never try to electrify the existing barbed or woven wire as it is too dangerous for your livestock.

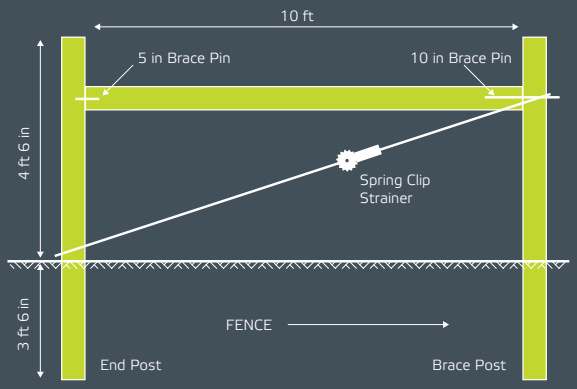
Patriot Wood Post Extenders (page 21) and T-post Extenders (pages 19–20) allow you to maintain your current fence structure while adding high tensile wire, poliwire, politape, or polirope to make it electric. This is a safe and highly effective way to convert a barbed or woven wire fence to electric.

Fence wire

The best permanent electric fences are constructed using 12.5 gauge galvanized high tensile wire. It provides a lower level of resistance than a smaller gauge of wire and has sufficient capacity to carry the electrical current of the fence. Some people use a smaller gauge galvanized wire (i.e. 14 ga., 16 ga., etc.); however, these have higher levels of resistance, do not allow you to achieve the maximum benefits of your energizer, and your fence life may not be as long. (Aluminum wire is not the same as steel galvanized wire. Small aluminum wire also has less resistance than comparable size steel wire.)

Corner/End braces

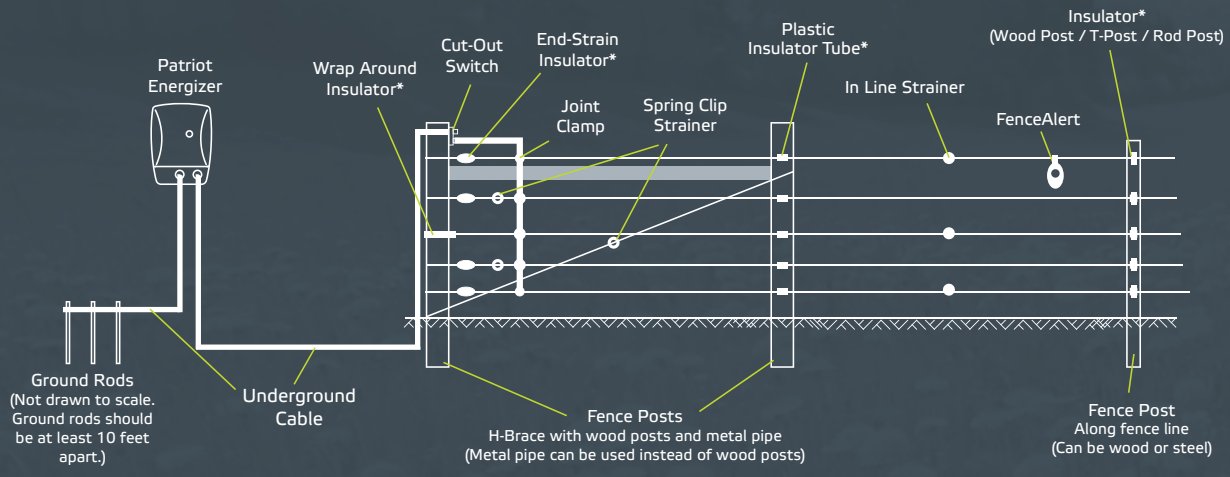
Corner and end braces are most commonly made of wood posts with a metal pipe between them. (You can also use metal pipe posts instead of wood posts.) The most common braces are made of at least two posts spaced at least 10 feet apart or 2.5 times the height of the finished fence. These H braces serve as the foundation of the fence line and help to maintain the tension, very important for high tensile fences. For more information on brace construction, please consult your local Patriot dealer or a fence construction company.



Fence posts

Permanent electric fences can be adequately constructed with wood posts, T-posts, rod posts, or metal posts. Typically the type of post chosen is determined by local availability and price.

Our accessory product information (page 19–28) indicates which accessories are suitable for the different post types.



* Insulator style and type may vary depending on individual need and type of post. See pages 19–23 for a complete range of Patriot Insulators.

TEMPORARY ELECTRIC FENCING GUIDE

A temporary electric fence works well for maintaining a small number of livestock for relatively short periods of time. The fence can be quickly constructed and moved as often as needed. Temporary electric fences are terrific choices for cattle and horses. They are sufficient for sheep and goats, but require more work and greater attention to detail (i.e., wire spacing, available posts, line tension, etc.). Temporary electric fences are also excellent for overnight trail rides to control horses and on camping trips to keep unwanted animals away from your camp site.

Fence posts

Temporary electric fences are generally constructed with either Sentinel Tread-In or Pigtail Tread-In posts (page 24). For more information on these products, contact your nearest Patriot dealer.

Fence wire

For temporary fences, good poliwire, polirope, or politape (page 24) with at least 6 strands of conductors are the best choice.

All Patriot temporary fencing wire contains 6 stainless steel conductors and white UV stabilized yarn for greater visibility and longevity. The biggest difference is the thickness and visibility of the different products i.e. politape is larger and therefore more visible than poliwire.

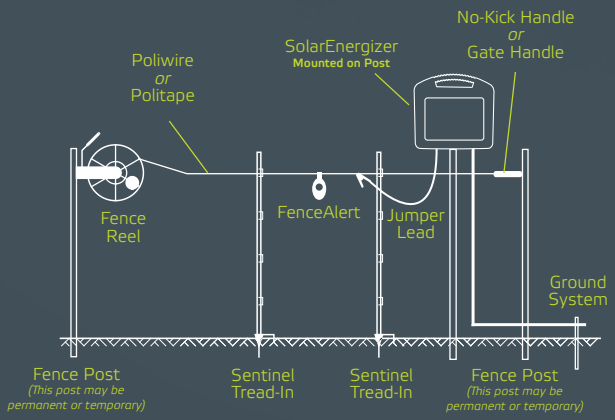
How do you join Poliwire or Politape?

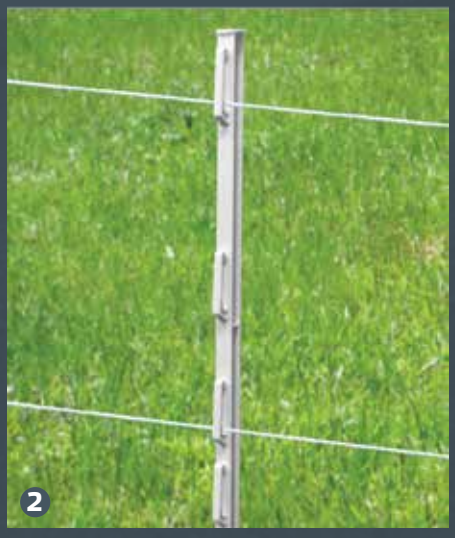
To join broken (or separate ends) of poliwire or politape, use a cigarette lighter to burn away the plastic yarn in order to expose the stainless steel wires. Twist and join the wires together, then tie the poliwire in a knot. The electrical current can then pass through wires.

For ½ in politape or 1½ in politape, you can also use the Patriot Tape Buckles (page 28).

Can a temporary fence be used as a boundary fence?

No, a temporary fence is not suitable for a boundary fence. A permanent fence is a much better choice.





1. Section of temporary fence using Pigtail Tread-In Posts and Politape. 2. Section of temporary fence using the Sentinel Tread-In Post and Poliwire.

Step Six:
GROUNDING AND TESTING

This is one of the most important parts of the fence. Without a proper ground system, you will not be able to achieve the maximum benefits of your electric fence.

What is a Ground System?

A ground system is the most important component of any electric fence system. If an electric fence is not properly grounded, it will be much less effective.

A ground system consists of a number of ground rods (stakes) that pass electric current back from the soil to the energizer. The larger the energizer and the longer the fence line, the more ground rods are required.

How does grounding work?

For an electric fence to give an animal an electric shock, electrical current (produced by the energizer) must complete a circuit. The current from the energizer flows along the wires, through the animal's body, down through the soil to the ground system, then back up to the energizer. If the ground system isn't working properly, the animal won't get an effective shock.

What factors will affect the Ground System?

Dry, sandy and non-conductive soil types limit the current flow to the ground rods. If you have soil that is not well suited to grounding, use additional ground rods, choose a better location for the ground system, or use an alternate method of grounding such as a ground wire return.

Vegetation touching the live fence wires allows current to leak, causing the fence to "short" and voltage to drop. Check the fence regularly to make sure that long grass and overhanging branches are not touching the live fence wire.

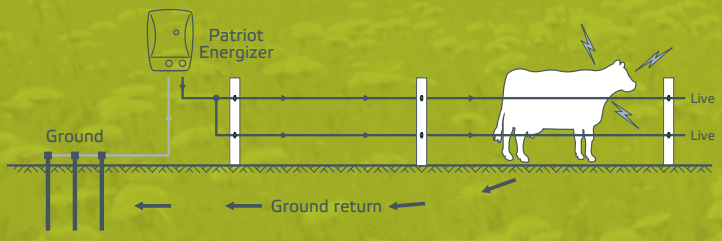
Using a mixture of metals in the ground system will lead to electrolysis. This may cause the parts of the ground system to disintegrate in a short period of time. For example, never use copper wire with galvanized ground rods.

Choosing the Right Ground System

Ground System – All Live

An all live ground system is recommended where soil is conductive (most moist soils are conductive). When an animal standing on the soil touches the fence, the circuit is completed and the animal gets a shock.

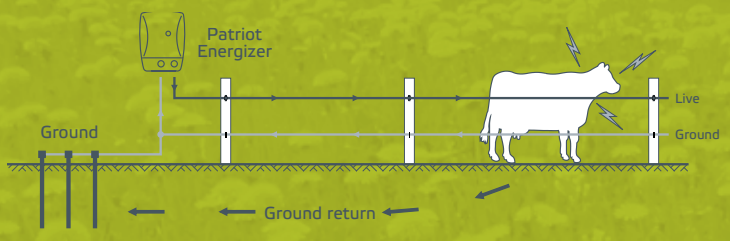
All Live



Ground System – Ground Wire Return (Hot/Ground)

A ground wire return, or hot/ground, system is recommended where soil is not conductive (most dry or sandy soils are not conductive). The fence is constructed using both live and ground wires. When an animal touches a live and a ground wire at the same time, the circuit is completed and the animal gets a shock.

Ground Wire Return (Hot/Ground)



Selecting a Site for the Ground System

A suitable place for the ground system is:

» At least 33 ft (10 m) away from any other ground system (i.e. telephone, house power line, etc.)

» Away from livestock or other traffic that could interfere with the installation

» Where the system can easily be accessed for maintenance

» Ideally, where there is damp soil all year round (i.e. a shaded area or under the drip line of a building).

NOTE: If it is not possible to locate the ground system in close proximity to the energizer, you may be able to use the existing fence line to connect to a remote ground system. In dry weather, it may be necessary to water the ground system in order to improve soil conductivity.

Setting up a Ground System

Ground rods

The number of ground rods required depends on the type of energizer being used to power the fence and soil condition. Refer to information supplied with your energizer for the correct number of ground rods to use.

For long ground rods (5'–6' length):

» Space the required number of 5–6 ft (2 m) ground rods (page 25) at least 10 ft (3 m) apart.

» Drive the ground rods deeply into the soil, at least 10 ft (3 m) apart. Make sure that the ground rods protrude out of the soil at least 4 in (10 cm) so they can be easily connected.

» Join the ground rods in a series using ground clamp (page 25) and underground cable (page 26).

For temporary fences using short ground rods (T-Handle, 3' length):

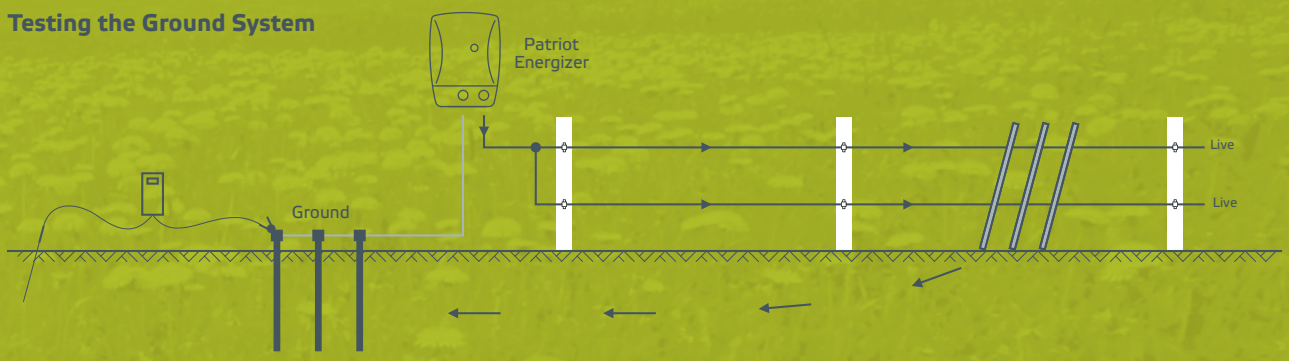
» Insert the rod at least 6"-12" into the soil.

Testing the Ground System

1. Turn off the energizer.
2. At least 330 ft (100 m) away from the energizer, short circuit the fence by laying several steel rods (or lengths of pipe) against the fence. In dry or sandy soils, drive the rods up to 12 in (30 cm) into the soil.
3. Turn on the energizer.
4. Use a digital voltmeter to measure the fence voltage. It should read 2 kV or less. If not, repeat steps 1 to 3.
5. To check the ground system, attach the voltmeter's clip to the last ground rod and insert the ground probe into the soil at the full extent of the lead. The voltmeter reading should be no more than 0.3 kV. If the reading is higher than this, the ground system is insufficient. See the grounding checklist, add more ground rods, or find a better location for your ground system.

GROUNDING CHECKLIST
All wires are joined securely.
Connections to ground rods are secure.
Ground rods are at least 5–6 ft long and at least 10 ft apart.
There are a sufficient number of ground rods.
All parts of the ground system are made of the same metal.
Ground rods are buried deeply in the soil.

Testing the Ground System



TROUBLESHOOTING

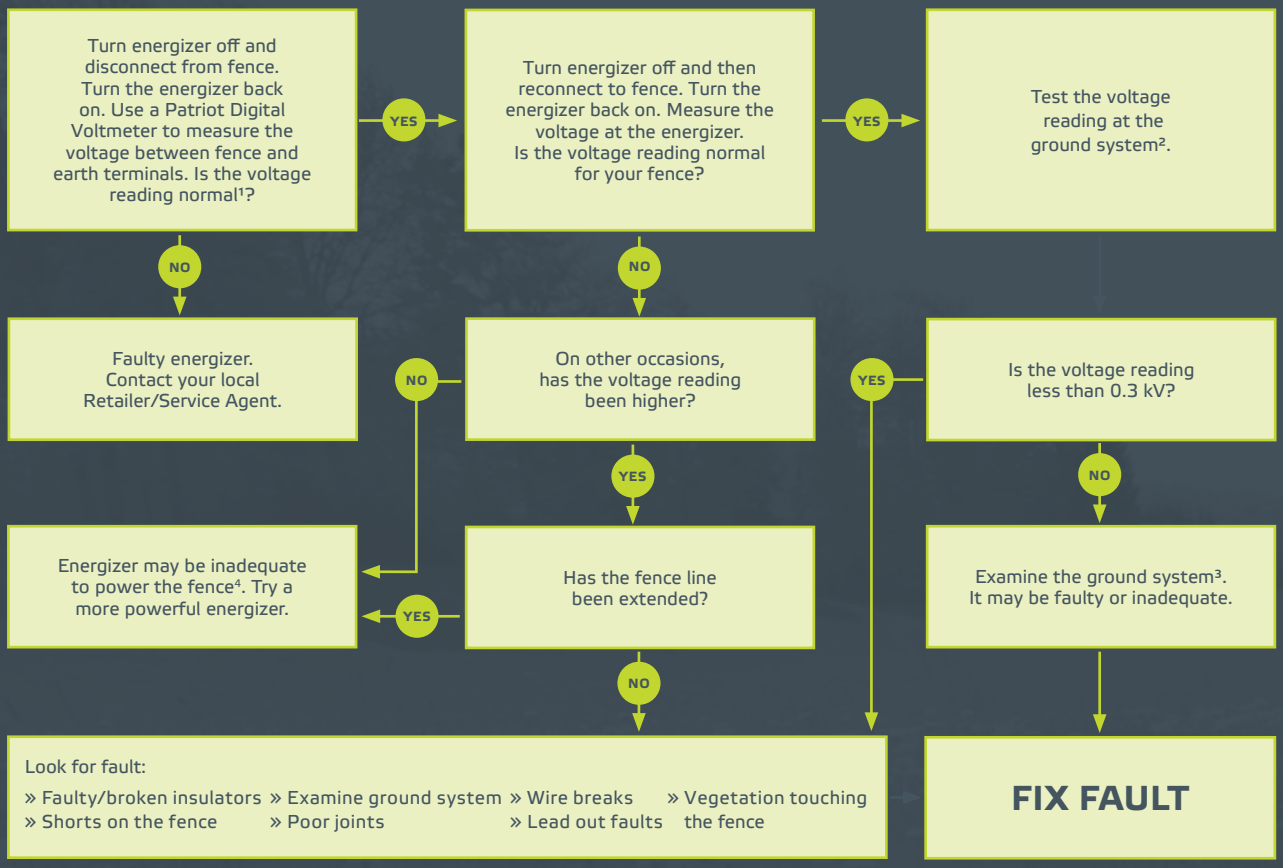
Finding a Fault Using the Patriot Digital Voltmeter

Electrical current flows toward a fault (short) in the same way that water flows towards the plug-hole in a bath tub. A digital voltmeter allows you to follow the direction of the current towards the fault.

- » Check the energizer and the ground system.
- » At the first cut-out switch, disconnect the rest of the fence and take a voltage reading. The voltage should be normal.
- » Move along the fence line stopping at each cut-out switch. Take a voltage reading with the cut-out switch closed and again with the cut-out switch open. A spike in the voltage reading with the cut-out switch open indicates a fault in the section of the fence which has been disconnected.
- » If you are still having trouble, follow the troubleshooting flow chart below.

When using the Digital Voltmeter to find faults, isolate sections of the fence line with Patriot Cut-out Switch (page 26).

START



1. Compare this voltage reading to the voltage output on the user manual or Energizers section of this brochure (pages 13–18).
2. There are different ways a ground system can be set up. To find out the best way to test the voltage reading of your ground system see pages 33–34, or contact your local Patriot Retailer for assistance.
3. Refer to the Grounding and Testing section of this brochure (pages 33–34).
4. Refer to Animal Considerations section (page 10) for more information on recommended minimum fence voltage for animal containment.

Always check that the fault has been fixed correctly. If fault is still present, return to start.
For further assistance, contact your local Patriot Retailer, visit www.patriotglobal.com, or call Tru-Test Customer Service at 800-874-8494.

ADDITIONAL INFORMATION

Key Terminology

AC	alternating current, AC power supply 110 - 120 V or 220 - 240 V.
Amp	unit of current. Short for Ampere.
Capacitors	used to store energy in the energizer.
Current	duration and magnitude of current causes the shock given by the electric fence. Increasing the voltage increases current, while increasing resistance decreases current.
DC	direct current, battery power supply (e.g. 12 V battery input).
Fault / Short	energy loss from the fence (i.e, live wire lying on the ground, vegetation growing over the fence, etc.).
Ground System	the rod(s) in the ground connected to the ground terminal on the energizer.
Joule	unit of energy. One joule is one watt of power for one second.
Lead out Wire	section of underground cable or wire that carries the electrical current from the energizer to the fence.
Live	the current-carrying wire connected to the energizer fence output terminal.
Ohm	unit of resistance.
Output Energy	effective energy delivered by the energizer.
Pulse	brief electrical current given by an energizer, approximately 0.0003 seconds per pulse.
Resistance	what causes loss of power and voltage on the fence.
Stored Energy	energy accumulated in the storage capacitor(s) in between output pulses.
Watt	unit of power. One watt is one joule per second.
Volt	unit of electrical pressure. Sometimes it is stated as "kV" or kilovolts which is equal to 1,000 volts.
Voltage	electrical pressure causing current to flow.

Notes

Notes

www.patriotglobal.com your source for:

- Helpful tips on building an electric fence
- Added product information
- Local retailers
- User manuals
- Much more

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Tru-Test Inc.
528 Grant Road, Mineral Wells
Texas 76067, USA
Toll Free: 800.874.8494 P: 940.327.8020 F: 940.327.8048

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