

Using a Fault Finder

The current flow on the fence will vary depending on the size of your Energizer, amount of vegetation and the size of your fence system. With time you will learn the normal current flow on your fence.

Fence tools and testers are another useful accessory to have on hand when building, maintaining or checking an electric fence. Gallagher has two fence testers, both available from your local Gallagher Dealer. The Fault Finder is a all-in one device, current meter and fault finder. The Volt Meter measures volts only.

To obtain the best results from your Fault Finder, Gallagher recommends that you check the current while the fence is operating without any faults. Then, when you suspect there is a fault on the fence line, you can compare the current flow with the "normal" current flow.

This will indicate whether a fault exists and, if so, how much the fault is affecting the performance of the fence.

HANDY HINT:

Multi-wire fences connected in parallel will have similar current flowing in each wire. To get the total fence current flow, add together the current flow in each wire.

Fence Volt/Current Meter and Fault Finder
G50905



Fence Volt Meter
G503014



1. The Arrow on the LCD will indicate which direction the current is flowing.
 2. Following the direction of the current, take readings approx. every 330' or at junction points along your fence line.
- Note: At a junction point, follow the wire with the highest current flow.
3. A fault is indicated by a drop in current flow between two checkpoints. The fault will be somewhere between the two checkpoints.
 4. To narrow down location of the fault, work back along the fence checking the current flow at shorter intervals.
 5. Correct the fault.
 6. After correcting the fault you should see the current reading drop and the voltage group. If not, check for further faults.

See page 50 for more troubleshooting help using a Fault Finder.

Testing on All Live Wire Ground System

This should be done once a short section of fence has been built. You should test your system at least once a year at the height of any dry period to ensure the grounding capacity is sufficient for the joule rating of the energizer.

Short the fence out at least 330' away from the ground system by using several ground rods between the wires and the ground. Reduce the fence voltage at this point to 2000V (2kV) or less.

Using a Volt Meter, measure the voltage between the wire connecting through the ground rods to the Energizer ground terminal and an independent ground rod. This rod should be a galvanized metal rod, minimum 8" long. Place the rod 3' away from the ground rods or as far away as your Volt Meter cable will reach.



There should be no reading on the Volt Meter; however, up to 200V (0.2kV) is acceptable. If the voltage is higher than this, switch off the Energizer, drive in more ground rods at the recommended spacings and connect them to the existing ground system until the voltage is down to the acceptable level.

Testing a Ground Return Wire System

Install a 6' ground rod as close a possible to the end of the fence. Install a 500 ohm load tester between a hot wire and ground wire. Choose the location for the ground rod in a damp area if possible. If you cannot find a damp area, the ground test may be unreliable.

Using a Volt Meter, measure the voltage between the hot wire and the ground wire across the load tester you just installed.

Next measure the voltage between the hot wire and the independent ground rod, leaving the load tester in place.

If the second voltage reading exceeds the first by more than 1000V (1kV) check the ground return wire for loose connections.

Finally, connect the independent ground rod to the ground return wire as a permanent connection.

Extra ground rods can be added at various places around the fencing system and connected to the ground return wire to improve ground performance.

If the first voltage reading is less than 3kV, your fence system is at risk of poor animal control.

Assuming that your ground wire return checked out satisfactorily, check that the fence hot wire has good connections. If connections are good, it is possible that your energizer is too small for your fence system. Assess your total length of fence or property size against the energizer selection chart on page 11.

Lightning Diverters

Lightning will likely damage your Energizer if it strikes your electric fence. Gallagher Energizers have internal lightning diverters that give partial protection against small strikes.

Since lightning always finds the easiest way to ground, installing a Lightning Diverter will give added protection by providing a path for any lightning that strikes the fence to be diverted to the ground.

Otherwise disconnect the Energizer from the fence and power supply during lightning storms.

Using the diverter does not guarantee complete protection. In bad lightning areas, grounding the top fence wire helps significantly by encouraging the lightning to get to ground without passing through the Energizer.

Leadout

Leadout describes the cable and wire that carries the power from the Energizer to the middle of your fence system. It can be either run overhead or underground. Insulated leadout cable should be used to prevent the leadout from shorting out on obstructions or the ground and should be used in buildings, under gateways and where soil could corrode exposed galvanized wire.

Undergate cables should not be used for long leadouts or for long distances underground, because 16 gauge galvanized wire will cause resistance to the flow of current reducing the available voltage in the fence.

This is not so important on small properties, but where medium sized distances of fencing are to be erected (<10 miles), use 12.5 gauge leadout cable. On large properties powering large energizers larger than 20 joules, high conductive cable should be used.

Never use household electrical cable; it is made for a maximum of 440 volts and for inside work only.

Never use copper wire cable because electrolysis problems occur where it is joined to galvanized fencing wire.

Keep resistance to a minimum and ensure maximum power transfer around your property by choosing the cable with the lowest ohm's rating.

CAUTION

NEVER use household electrical cable. It is made for low voltage use only.

NEVER use copper wire/cable because electrolysis (electrical corrosion) occurs where it joins galvanized wire.

Selection of the right fencing systems depends on property size, fencing usage and animal type. Use this electric fence guide to help you configure your fence based on your usage and the animal(s) you will be fencing.

1 Permanent Electric Fencing

Permanent electric fences for highly effective animal control that lasts a lifetime.

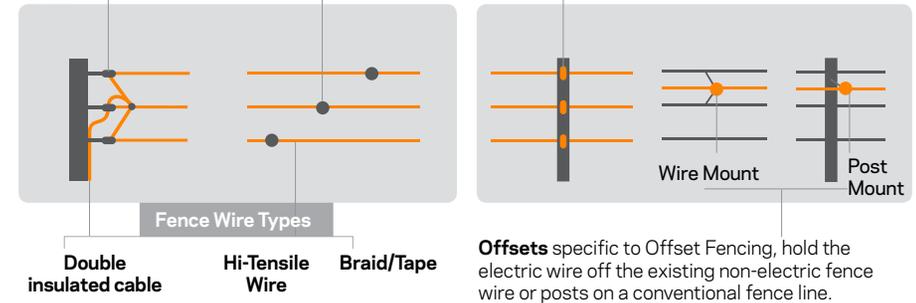
2 Offset Fencing

Extend the life of an existing conventional non-electric fence by retrofitting an electric wire.

End strain assembly provides an insulated attachment between the wire and the strainer posts at each end of the fence.

In line straining allows the fence to be tensioned and re-tensioned as required.

Insulators attach the fence wire to the posts, keeping the wires at the correct spacing and height.



Offsets specific to Offset Fencing, hold the electric wire off the existing non-electric fence wire or posts on a conventional fence line.

3 Temporary/Portable Fencing

Easy to transport, assemble and take down for short-term animal control or rotational grazing.

Reels hold the tape, braid or wire for the portable fence. You can use just one reel for single line fences or up to three reels, attached to a reel stand, for multi-wire fences.

Portable Posts are lightweight yet sturdy. Pigtail and Ring Top posts are most popular for cattle fences and multi-wire treadins are used for all livestock fences.



Power Connectors are leads that connect a portable fence to an existing permanent electric fence.

Tapes, Wires and Braids are used on portable fences rather than the high tensile galvanized wire used on permanent fences. Gallagher conductors are ideal for portable electric fences as they are light, visible, easy to wind and durable.