

"PUT MORE KICK IN YOUR FENCE WITH"

POWERFIELDS FENCE CHARGERS



FENCE CHARGER INSTALLATION INSTRUCTIONS

1-800-843-3702

POWERFIELDS
www.powerfields.com

- Electric fences should be installed and operate so they cause no electrical hazard to persons, animals, or their surroundings.
- Electric fence constructions, which are likely to lead to entanglement of animals or persons, shall be avoided.
- An electric fence should not be supplied from more than one fence charger or from independent fence circuits of the same fence charger
- The gap between two separate electric fences with different fence chargers should be at least 6 feet. If the gap is to be closed, use non-conductive material such as wood or plastic.
- Do not electrify barbed or razor wire by means of a fence charger.
- When installing an electric fence along a public pathway or roadway it's a good idea to place warning signs every 30 feet which is required in some states. Check your local laws to see if it applies to your area.
- Except for low output battery operated fence chargers, the ground rods should penetrate the ground to a depth of at least 6 feet.
- Connecting leads that are run inside buildings should be effectively insulated from coming in direct contact with any earthed structural parts of the building. This may be achieved by using double insulated high voltage wire.
- Connecting leads that run underground should be placed inside of conduit or PVC tubing. Care should be taken to avoid damage to the connecting leads due to the effects of animals hooves or tractor wheels sinking into the ground.
- Connecting leads should not be installed in the same conduit as the main supply wiring, communication cables, or data cables.
- Connecting leads and electric fence wires should not cross above overhead power or communications lines.

SERVICE OF DOUBLE INSULATED APPLIANCES



Means CAUTION- To reduce the risk of electric shock, DO NOT remove cover. Refer servicing to qualified service personnel.



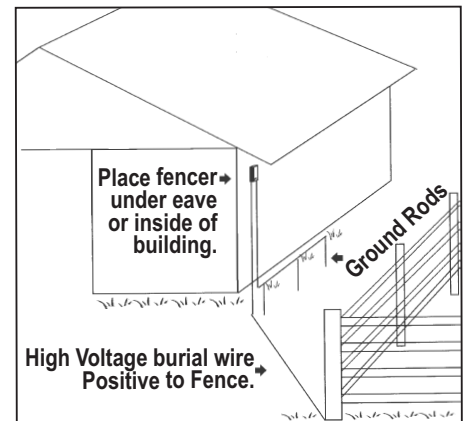
Means WARNING- Replace fuse as marked i.e. 1 amp 250 volts

In a double insulated controller, two systems of insulation are provided instead of grounding. No equipment grounding means is provided in the supply cord of a double insulated controller, nor should a means for equipment grounding be added to the controller. Servicing a double insulated controller requires extreme care and knowledge of the system, and should be done only by qualified service personnel. Replacement parts for a double insulated controller must be identical to the parts they replace. A double insulated controller is marked with the words "DOUBLE INSULATION" or "DOUBLE INSULATED."
DANGER- Do not modify the plug provided with the controller. If it will not fit the outlet have a proper outlet installed by a qualified electrician.

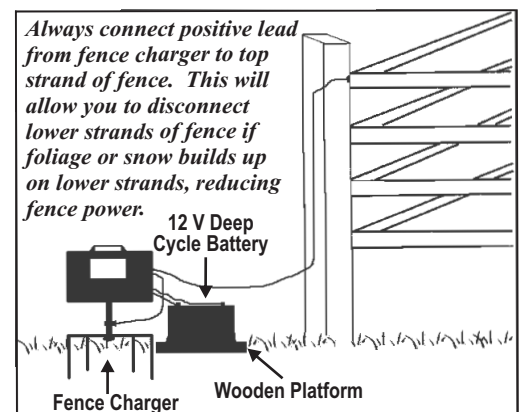
110 Volt Chargers - Place the charger near the fence where 110 volt power is available. Chargers should be placed under an eave, inside a waterproof container, or inside of a building. If your power source is more than 50 feet from the fence it is recommended to run 110 volt wire underground from the source to a weather proof plug-in rather than running a long distance of high voltage burial wire. A certified electrician should be used for the installation of 110 volt wiring. When chargers are located on a corner or gate post, a small rectangular plastic trash can is an easy way to protect the charger from moisture. Cut a section out of one side of the waste can to clear the mounting screws and slide it upside down over the charger.

12 Volt Battery Chargers - The fence charger and battery should be placed in a location where neither will be harmed by animals or machinery. On longer runs of fence, place the charger in the middle of the fence run for maximum charge in the fence. Use a wooden base under your battery to prevent rapid discharge and lengthen battery life. A platform can be easily made by nailing together 2 x 4s the same length or longer than the battery. For best results use a 12 Volt Deep Cycle Battery. The 12 volt chargers light will flash GREEN, at about one pulse per second, indicating that they are working correctly. When the battery requires recharging it will flash RED. If the RED light stays ON, check the battery. Some models are equipped with two power output settings. The low setting, marked by a single lightening bolt, is used to conserve battery life, the high setting, marked by two lightening bolts, is used to train animals. Once the animals are accustomed to the fence use the low setting. Always check fence voltage at the furthest point possible from the charger using an approved fence tester. When using a permanent ground rod system, do not connect the black alligator clamp, instead directly connect the wire leading from the ground rods to the black terminal on the outside of the case.

Solar Chargers - Locate the charger near or at the fence where it can not be damaged by animals or machinery. Place the charger so the panel is facing in a Southeast direction. This allows it to capture morning sunlight and start the recharging process earlier in the day. Make sure there are no obstructions blocking sunlight as shade will reduce recharge intensity. It is recommended to switch the charger off for one day a month to assist in maintaining higher battery output, maximizing fence potential and battery life. When a permanent ground rod system is installed, do not connect the black alligator clamp supplied, instead directly connect the wire leading from the ground rods to the black terminal on the outside of the case. On longer fencing runs place the charger in the middle of the fence run to ensure adequate voltage in the fence.



Building Installation



An electric fence is a less-than-ideal environment on which to conduct electricity. Along the course of the average fence there are many conditions that will divert or impede the flow of electricity. Collectively, these conditions are known as “*fence load*.”

Weeds or vegetation growing on the fence line are the most common culprit contributing to a heavy fence load. Green plants draw voltage and amperage from the fence to the earth. Other circumstances can rob the fence of voltage and amperage. Cracked or broken insulators, or insulators of poor design will allow electricity to leak to the fence post and return to earth. Sagging or broken wires can contact uninsulated wires or the ground. Wet weather will magnify all of these problems. When enough conditions exist to draw all of the electricity produced by the fence charger from the fence, the fence is said to be “shorted out.”

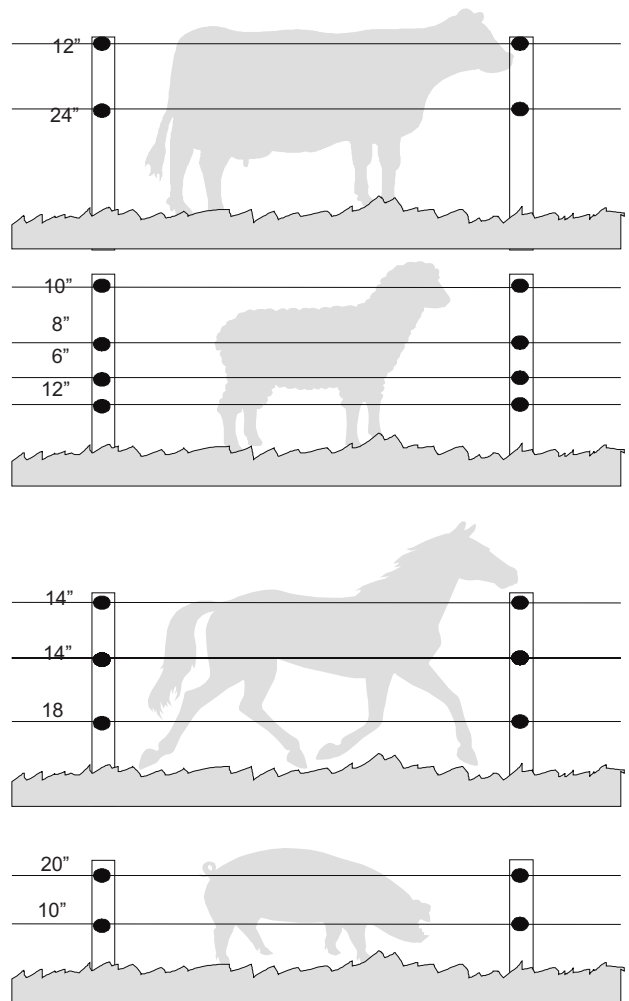
Rusty wire, poor splices, or wire of insufficient diameter to carry the flow of voltage and amperage also contribute to fence load. These problems do not draw voltage and amperage to earth, but they do impede the flow of electricity along the fence, contributing to the fence load.

Even the length of the fence contributes to the fence load. The longer the fence, the less ability (or greater capacitance) it has to store the energy supplied by the charger. On very long fences, capacitance can be a major contributor to fence load.

Proper construction with quality components, installing an adequately powered fence charger and good management practices are the key to keeping fence load under control

Number of Polytape Strands : Determining the right number of strands to use and the height of your fence requires some evaluation. The type of horses and the amount of property is first. If you ride as a casual pastime and have trail type, mature horses, 3 strands will be sufficient for pasture areas.

Rule of thumb: less than 1 acre per horse use 4 strands, more than 1 acre per horse 3 strands is sufficient. If you have breeding stock with foals, 4 strands is a must. Stallions, depending on their attitudes, may require 5 or 6 strands 5 to 6 feet tall. The average height of most installations is 54 inches to the top of the posts and 50 inches to the top strand. Spacing between strands should be 13 inches with 3 strands, leaving 24 inches from ground to bottom strand. On 4 strand installations, at 54 inches post height, spacing between strands would be 10 inches, leaving 20 inches from the ground to the bottom strand. If you are using 5 foot long Safe-Tee-Sleeves over tee-posts you may go the full 5 feet or cut off the bottoms to the height you desire. However you should never exceed 15 inch spacing between strands. Boarding facilities should always put up 4 strands at 5 feet high due to the prospect of new animals that may be unfamiliar with electric fence. It also adds aesthetic value and a very secure appearance that your customers will value. For pasture separations and in cell grazing applications, 2 strands may be used where no foals are present. Never use less than 3 strands for perimeter fencing or less than 4 strands where property parallels a highway.



Grounding of Fence Charger - Installing a minimum of three - 6 foot long ground rods, 10 feet apart will insure maximum efficiency in the operation of your electric fence system. **Inadequate grounding is the most common failure in electric fence operation.** Consider that the grounding system of an electric fence is similar to the antenna on a television set, the larger the antenna, the greater the reception. Ground rods serve to collect the voltage as it passes from the fence into the animal, through the earth, and returns to the fence charger completing the circuit. The animal will only feel the amount of power that returns back to the fence charger, therefore it is critical that the ground field, like the antenna, is large enough to insure the collection of all available power.

Within 20 feet of the location of the charger dig a 4 to 6 inch deep trench 20 feet long. This should be in an area that is out of the way of animal or vehicle traffic. Drive a ground rod into the earth at each end of the trench and one in the middle. With the brass acorn ground clamps, attach the galvanized wire to the rods, laying it in the bottom of the trench.

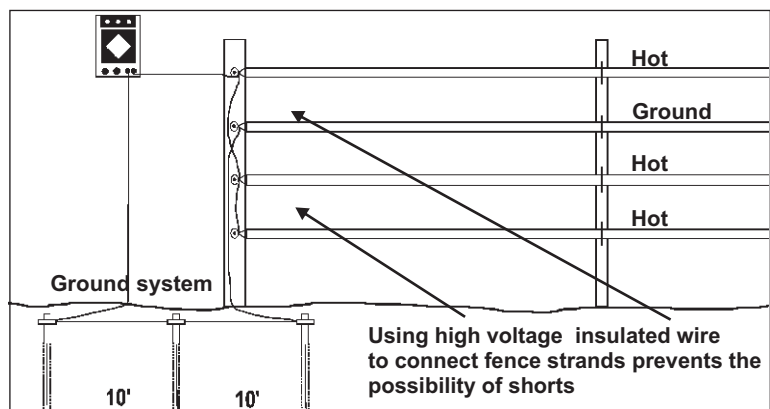
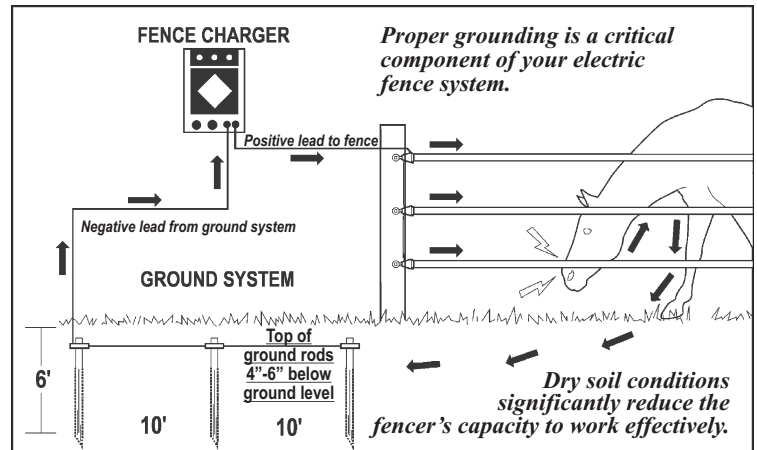
Attach the end of the wire to the negative or ground post of the fence charger. Attach high voltage shielded wire to the positive post of the charger and then to the fence. Do not use unshielded wire to make connections from the charger's positive post to the fence. If there is any danger that horses may walk or run in the area of the ground rods we suggest that a coffee can be buried over the top of the ground rod ends to reduce the possibility of injury.

A good way to test ground rod efficiency is to place a metal rod, 12 to 18 inches long, in the ground about 3 feet from the ground rods. With a volt meter, contact the short rod to the earth. If you read more than 500 volts you need to add another ground rod or replace the ones you have with longer ones.

In areas where heavy snow and ice are common, you may need to take additional grounding measures. Most people don't realize that neither snow nor rainwater will conduct electricity. Frozen ground also reduces the flow of current.

When animals are to be left out in electric fenced areas during frozen snowy conditions you can improve the electric fence function by grounding out of the strands of fence, as shown in the diagram below, or by running a 12 1/2 gauge wire, on or just below the surface of the ground, connected to the fence posts. This wire is attached to the ground terminal of the charger thereby creating maximum conductivity when the animal touches the fence, even in snow.

Typical Ground Rod Installation



Grounded Strand of Fence Installation