

# Premier PRS Solar Energizer Do's and Don'ts

## Should I set it on the ground or hang it up on the fence or from a post?

The ideal (rarely achieved) result ensures that the sun rays at 12 noon strike the solar panel perpendicularly (not at an angle).

In the summer, because the sun passes overhead for most folks, PRS units can be set on the ground. We raise the north edge of the unit up a little. While any rock, brick or stick will work for this, we set it on top of the ground rod which usually sticks up 4 to 6 in.

*Units not in full sun have a chance of draining the battery(s) beyond solar recharging capabilities.*

*In winter, (see "Winter tips" below right) if the battery(s) is not kept fully charged—battery(s) can freeze and no longer take a recharge.*

In winter, if a PRS is still being used on a fence, the panel needs to be at an angle of 45° or steeper. Why? To reduce risk of snow or ice sticking to it—and in winter the sun's rays (for us) come from low in the south.

You can actually hang a PRS 50 and a PRS 100 vertically on a post if you wish. (PRS 200s and 100X units are too heavy for this.)

## Location "don'ts"

1. Don't place it in areas subject to flooding, the cases are rain proof but not flood proof.
2. Don't allow livestock and poultry access to it.
3. Don't place it on the north side of fences or posts (and not under trees). If the solar panel is partially shaded at any time during the day the battery won't charge.
4. Don't allow grass and weeds to grow tall around the energizer—as they will block the sun.

## All other solar fence energizers hold the panel at an angle. Should the PRS units also be angled?

### Solar panels are angled for 3 reasons:

- a. Allows rain to wash off dust. Dust build-up prevents the sun's rays from reaching the solar cells.

- b. Shedding snow and ice during the winter. Since ice and snow stick to vertical surfaces all users should wipe the panel free of snow. A solar panel covered with snow will charge nothing.
- c. Make the solar panel perpendicular to the sun's rays at mid-day. This maximizes daily solar intake.

## Why is it so much heavier than other solar units?

Because it needs a battery(s) large enough to store enough electricity to allow it to keep operating for at least 5 cloudy days. The larger the energizer in output, the larger the battery. Other solar units are much lower in output so they need smaller batteries that, in turn, are less heavy to carry around.

## Winter tips:

### If you're not using your PRS unit during the winter:

- Turn off the unit.
- Clean off the solar panel.
- Before storage, fully charge the unit. Batteries of 50% or less charge may freeze.
- Place the unit in a sunny area, this will allow the solar panel to continuously charge the battery or recharge the battery with a 12v recharger designed for deep cycle batteries.

### If you're planning on using your PRS unit during the winter:

- Face the energizer due South. Stand up or prop up the unit (facing South).
- Hang and secure the unit (facing South) to a fence post to keep it out of snow drifts.
- Clear all debris off the panel. Do not place in shady areas.

If you need any help with your PRS unit or any other Premier product, call us at 1-800-282-6631 or email us at [info@premier1supplies.com](mailto:info@premier1supplies.com)

# 2 Year Energizer Warranty!

When you buy an energizer from Premier, you purchase more than an energizer. You also obtain these benefits:

## 1. If an energizer fails within 2 years of its date of purchase, we will replace the module/unit at our cost.

Your credit card will be charged for the replacement but you will receive full credit when the failed item is back at Premier. Your only cost is shipping the failed item to us.

If the original energizer is over 2 years old, we will repair and/or replace it, but you pay for the repair cost and freight.

**Note:** This policy doesn't apply to failure due to abuse or neglect or flood damage.

## 2. Batteries carry a 30 day warranty.

## 3. Free next-day shipment of warranty replacements.

A unit can be shipped by 2 p.m. Central Time to be received the next business day. (Calls on Friday after 2 p.m. will ship Monday.)

If you think your energizer has failed, please call us at **1-800-282-6631**.

We'll help you test your energizer to ensure that it has truly failed. (*About 25% of the units we receive back work fine. The fence was at fault instead of the energizer.*)

## 4. Free technical support.

We will provide free advice and support both before you purchase an energizer or fence and afterwards for as long as you wish our help. This applies to energizer repair issues also. If you are not sure how to replace a module, our people will "walk" you step-by-step through the process via the phone.

## 5. Solar energizer packages.

With larger energizers (over 1 joule), the panel, battery and energizer need to be correctly sized for each situation. We will do this for you at no cost if you call us. (You can then order them online if you wish to save shipping costs!)

## 6. Five-year assurance against energizer obsolescence.

Our "contract" with our customers includes repair or replacement of any non-working units for up to 5 years whether the unit is "obsolete" or not. Who pays for us to do this in years 2 to 5 of the energizer depends upon the applicable warranty.



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## Energizer ground rods

Install galvanized ground rod(s) a minimum of 30' to 40' away from any other electrical grounds. Use as a rule of thumb—3' (minimum) of galvanized ground rod for each released joule of output from the energizer. If a 6' ground rod is used, then additional 6' rods should be spaced at least 8' apart in a straight line. If 3' ground rods are used, additional 3' rods should be spaced 4' apart in a straight line. Make sure to place the energizer ground system in a moist location.

For AC units and large battery units, use an insulated galvanized lead-out wire to connect the energizer's ground terminal to the ground rod(s). Shed 3 inches of insulation off each end of the lead-out wire. Use a galvanized or stainless steel clamp to connect the end of the lead-out wire to the ground rod. Some small battery units (1 joule or less) have a wiring harness included with them.

## How do I tell if I have adequate ground rods?

By seeing if voltage will build up around your ground rods in "worst case" conditions. Follow this procedure.

1. Turn off the energizer. Walk down your fence line at least 500 ft. from the energizer.
2. Insert a galvanized steel wire or rod into the moist soil. Attach one end securely to the live wire(s).
3. Push a second wire into the soil 10 ft. from your ground rod(s).
4. Turn on the energizer. You've created a dead short on the fence. All pulse energy will rush out of the fence, into the soil. Without adequate grounding, it will "pile up" around the ground rods creating voltage.
5. If the existing ground rods are adequate in total length and depth, you should be able to attach a fence voltmeter between the ground rods and the temporary wire and get a reading of less than 300 volts. If more than 300 volts, add more ground rods.

## How does a lightning choke/diverter work?

It does not arrest lightning. The soil does that. The "diverter" offers the lightning a diversion path to the soil. It brings the positive and negative wires/ground rods as close together as possible. Lightning, with its extremely high voltages, leaps easily across the gap and into the ground wire and in most cases by-passing the energizer.

## How important is voltage in a fence and fencer?

The higher the voltage (electrical pressure) the further a spark will "leap" from the energized wire through air,

hair/fur and into the animal's nervous system. High voltage is vital for furry animals (bear & coyotes), thick-skinned animals (elephants), and hollow-haired animals (deer). Less voltage is required for cattle, pigs and horses since they have less hair and thin skin.

## What's the minimum voltage for various species?

- 1,500 volts for dogs, pigs and horses.
- 2,000 for sheep and goats.
- 3,000 for deer and furry "critters".

## Note these key points:

1. Keep grounds 30 to 40 ft away from any other electrical ground source. This includes house ground systems and wells.
2. Use only galvanized lead-out wire and galvanized ground rods. Do not use copper lead-out wire or copper ground rods.
3. Use only insulated wire designed for electric fencing. Do not use wire rated at less than 10,000 volts.
4. Tight electrical connections are always required.
5. When constructing positive/negative fences, re-ground negative wires every 1,200 ft.

## Common Mistakes:

1. Buying too small an energizer. Power = pain = a fence that works!
2. Buying on price alone. 85,000 50 amp. pulses per day requires very high quality design.
3. Too short or too small a ground rod.
4. Tiny lead-out wires to fence and ground stakes.
5. Not protecting the system from lightning strikes.
6. Poor wire connections force a powerful energizer to perform like a weak one.

# Troubleshooting

## DC Battery Unit

First determine whether it's the battery or the energizer that's not working.

1. If it's a 12v energizer, carry it to a nearby vehicle. Attach the input cords carefully to the vehicle's battery.
2. If the energizer works, then the energizer's battery needs to be recharged or replaced.
3. If the energizer does not work when attached to a vehicle battery, then you should call Premier about the unit.

## How to find the fault(s) on the fence

First, re-attach the fence and ground wires to the energizer and turn it on. Then, you must walk or ride along the fence looking for situations that are reducing the voltage.

If you don't have a Fault Finder (and do have a voltmeter or fence tester): Walk or drive along the fence.

### a. Netting—look for:

- Lowest live wire against a metal spike on plastic posts.
- Damaged strands that are touching the ground.
- Netting touching wire fences or steel posts.

### b. HT wire and rope fences, look for:

- Damaged and broken insulators.
- Any point where an energized wire touches the soil, a steel or wood post or a nonenergized wire. Separate them.
- Branches lying on the fence and forcing wires together. Remove them. (Wires will "spring" back.)

### c. Listen for snapping sounds as you walk along a fence. These occur when a conductor is close to a grounded wire, stake and/or a large green weed or tree.

### d. Separate the fence into parts by turning off switches (if it's a permanent HT wire fence), or by disconnecting portions of electric netting. Then progressively reconnect it, checking the voltage as you do so. When the voltage suddenly drops you've found the area with the problem (the section you just connected or switched on).

# Warning!

All electric energizers are potential fire hazards if not properly installed and maintained. Therefore, their use, maximum output, installation and permitted times of operation are often regulated on state or local level, or both. If there is a likelihood of local regulation, we suggest that you contact local authorities before installing your energizer.

*Premier 1 Supplies, LLC learned of an accidental fatality of a very young child which occurred when he came in contact with an electrified fence wire while crawling through wet grass. It appears the fence was correctly installed and functioning properly. The energizer was not large by today's standards (2 joule plug-in unit) and UL approved. The fence wire was standard electroplastic twine and thus a relatively poor conductor compared to steel, copper or aluminum.*

*We caution parents to keep small children away from electrified fences. Children of all ages should be warned not to play in an area where electrified fences are installed. Individuals of all ages should take care to avoid accidental contact of electrified fences with the head and neck.*