

- 12-14 gauge galvanized fence wire.
- Ground rods – 4 feet long by 1/2" (or more) in diameter, galvanized steel rods.

IMPORTANT: Avoid SANDY, DRY and ROCKY soil.

In the many applications this solar energizer only requires one 4 foot ground rod, if the fence is 1 acre or less. If the soil is dry, then either 2 or 3 ground rods may be needed.

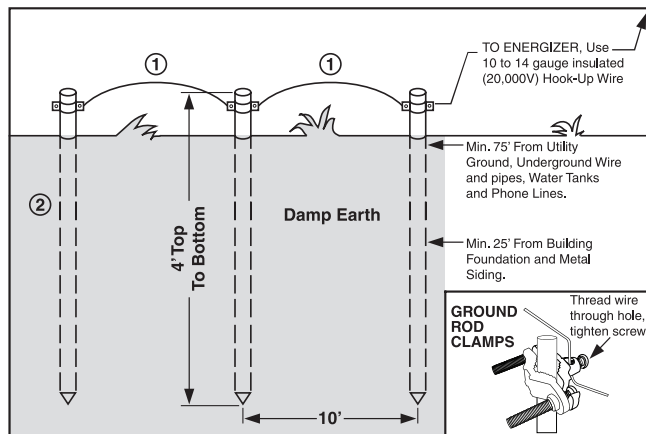


Diagram 1 – Ground System Installation

**Installation STEP 4: Connect the fence hot (red knob) terminal**

Note: Ensure the energizer switch is in the OFF position before making this connection.

- Refer to the red fence terminal knob on the front/bottom of the energizer. This is the red knob that is marked with a small lightning bolt on the front label.
- Unscrew the fence terminal knob without fully removing it. Make a “J” shape in a bare end of hook-up wire, wrap this bare end of wire around the fence terminal bolt, and hand tighten the red knob. 10 to 14 gauge insulated lead-out wire (rated at 20,000V) is commonly used for this.
- Properly connect the other end of the wire to your electric fence. A split bolt line tap is a common means of connection. Refer to the WIRE SPLICING AND CONNECTIONS diagram for other connection means.

CAUTION: Only hand-tighten the fence terminal knobs on the energizer. DO NOT use pliers or other mechanical means or they may be over-tighten, and damage may occur that will void your warranty.

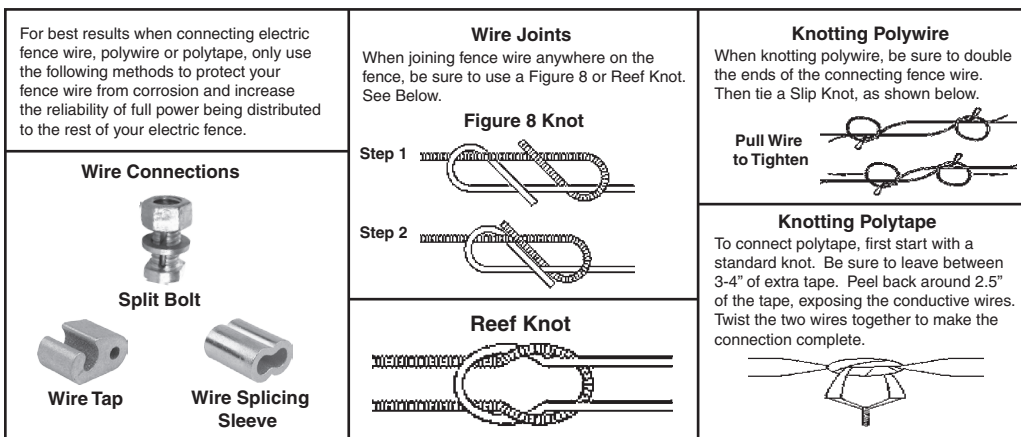


Diagram 2 – Wire Splicing and Connections

**Installation STEP 5: Energize your fence**

Put the energizer switch in the ON position. Wait for it to go through its **Easy Battery Check mode**. Next, there will be about a 3 second time with no light flashing, prior to producing high voltage pulses. The red light should flash about once every 1.5 seconds for a fully charged battery, but for a low battery it can flash as slowly as every 2 seconds due to the **Battery Saver** mode.

NOTE: It is highly recommended that you buy an electric fence digital volt meter. This is the only way to be confident about the fence voltage.

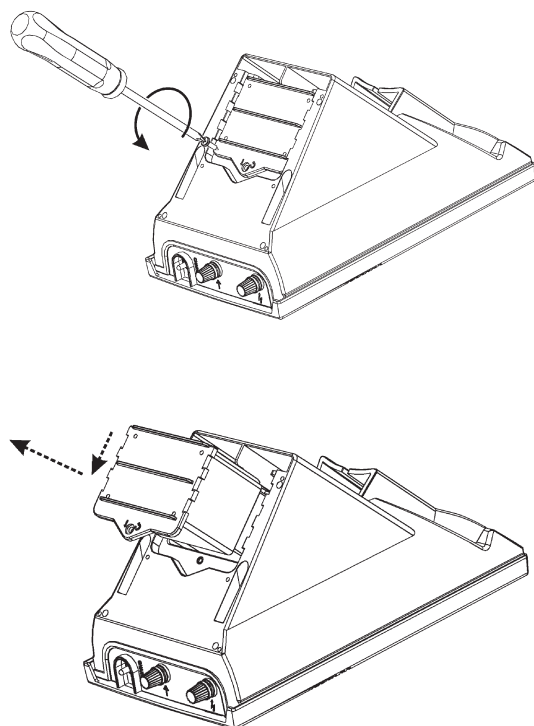
**SOLAR PANEL MAINTENANCE**

Every few months use a damp cloth (with water only) and a dry cloth to clean the solar panel. This will help maximize solar panel efficiency. If snow gets on the solar panel simply wipe it off. When the energizer is to be stored (for more than 4 days) use something dark to cover the solar panel (to prevent it from overcharging the battery). When storing the energizer, place the energizer in strong direct sunlight for 2 days, every 4 months, with the switch in the “CHARGE” position. Put switch back into the “OFF” position for storage.

**BATTERY REPLACEMENT**

The solar energizer battery is pre-installed and already tested and connected, from the factory. The easiest way to charge the 6V battery is to follow the battery charging instructions in step 1 of the installation procedures, using the sunlight. If you put the charger in full sun for 5 days, and the battery voltage is still under 5.75V, then you may need to replace the battery, **but you should only have to do this after several years of use**. To replace the battery refer to the following drawings. Remove the battery door, slide the battery door in the direction of the arrow, and then pull it out. Carefully disconnect the red and black wires (Hold onto the connector). Replace it with another 6V, 4.5Ah sealed lead acid rechargeable battery. Carefully connect the red wire to the red (+) battery terminal and the black wire to the black (-) battery terminal, or damage may result. Put the battery in the compartment, put it back into the energizer, and tighten the screw.

WARNING: Save These Instructions



**30 DAY SATISFACTION GUARANTEE**

DARE Products, Inc. guarantees your complete satisfaction with this fence energizer. If you are not satisfied with this product, you may return the energizer to the original place of purchase within 30 days of purchase for a full refund. Proof of purchase is required for a refund.

**LIMITED WARRANTY**

DARE Products, Inc. warrants this fence energizer to the original purchaser only, for a period of twelve (12) months from the date of purchase, when installed and used in accordance with the enclosed installation instructions. The solar panel and the battery are also under warranty for 12 months. Proof of purchase is required for warranty consideration. This warranty covers defects in materials and workmanship to the fence energizer. The warranty also covers damage to the energizer caused by lightning.

**TERMS THAT APPLY TO BOTH THE GUARANTEE AND WARRANTY**

Improper installation, misuse, neglect, tampering, or any other reason not related to material or workmanship are NOT covered under the 30-Day Guarantee or the Limited Warranty. No warranty other than the above is expressed or implied. Implied warranties of merchantability and fitness for a particular application are hereby disclaimed unless the law specifically precludes this disclaimer. The manufacturer and seller shall have no liability for damages, incidental or consequential, resulting from or caused by any failure, malfunction or defect of any product.

The sole obligation of DARE Products, Inc. shall be limited to repair or replacement, at its option, of the defective fence energizer or part.

**TO MAKE A WARRANTY CLAIM**

- First disconnect energizer from fence and confirm that voltage output at the energizer terminals is not normal.
- Before returning product under warranty, you must call DARE Products, Inc. at (800) 922-3273 to obtain a Return Goods Authorization number and a shipping address for the service center that will process the return. The RGA number must accompany the returned product.
- Attach a note showing your name, phone number, return address and brief description of the problem.
- Pack product carefully in oversized carton with crushed newspaper for cushioning.
- Your product should be shipped **prepaid** and insured against shipping loss or damage.



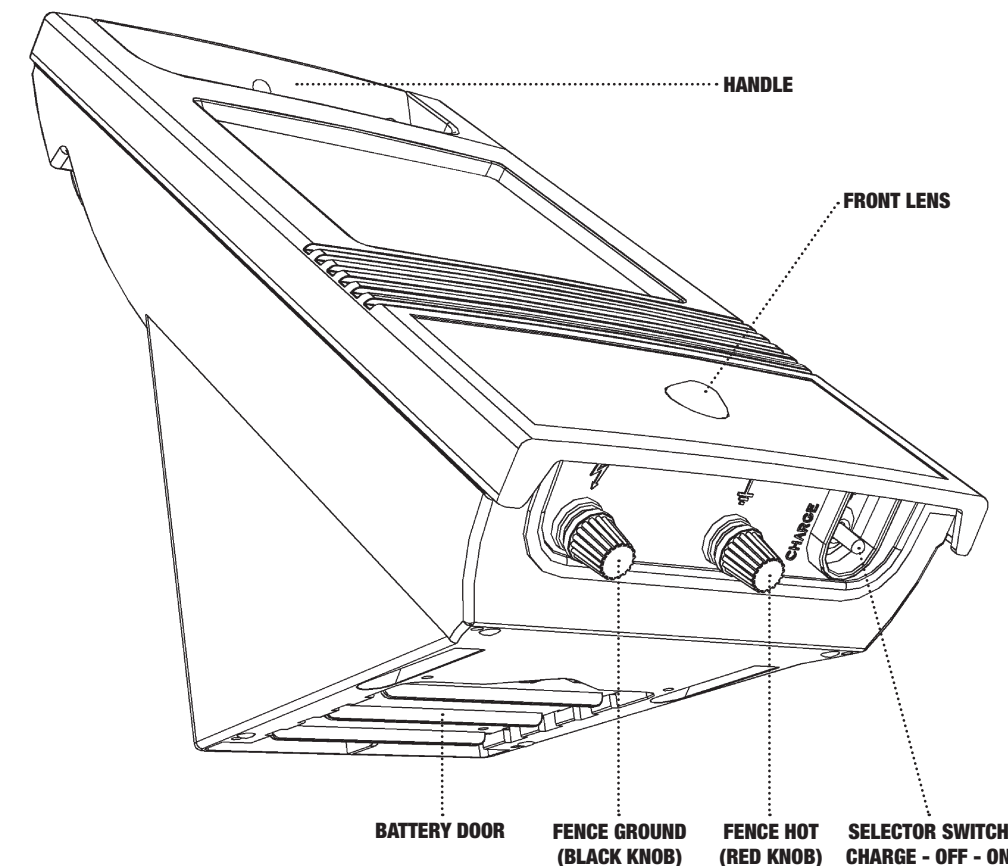
860 Betterly Rd.  
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# DARE

## DS20 SOLAR POWERED

### Electric Fence Energizer

#### Installation, Operating and Warranty Instructions



**SAVE THESE INSTRUCTIONS**

**WARNING: READ ALL INSTRUCTIONS BEFORE INSTALLATION.** Only use electric fence controller for the purpose indicated in this manual.

**CAUTION:** To reduce the risk of electric shock **do not** remove cover. Refer to service personnel. **Always** turn off energizer before handling.

**WARNING: Do not** connect simultaneously to a fence and any other device such as a cattle trainer or a poultry trainer. Otherwise, lightening striking your fence will be conducted to all other devices.

**WARNING: NEVER** put more than one energizer on a fence. Doing so can be hazardous, and may also damage the energizer.

**WARNING:** In areas prone to brushfires turn off the fence controller on very dry days.

**WARNING:** During lightning storms do not disconnect wires or approach the electric fence.

**WARNING: NEVER** electrify barbed wire or similar fence types were humans or animals can become entangled in the fence or caught against the fence.

**WARNING: Do not** operate electric fence controllers near any combustible materials including gasoline, cleaning fluids and kerosene.

**CAUTION: RISK OF ELECTRIC SHOCK.** Do not install where small children, the elderly or unhealthy persons may come in contact with the live portions of electric fencing. Use electric fence warning signs where humans may come in contact with the fence.

**WARNING:** Follow all national, state and local codes and regulations that apply to installation of electric fence in your area.

REFER TO AUTHORIZED REPAIR CENTER FOR SERVICE. Never alter the design of the energizer. Doing so is hazardous and will void the warranty.

**WARNING: DO NOT** run fence wire above ground near high voltage power lines. If too close, the electric fence may pick up dangerous levels of power from high voltage lines. Do not cross under a high voltage line with electric fence.

**WARNING:** Electric fences are very effective psychological barriers when properly installed and when animals are trained to the fence. Electric fences are NOT complete physical barriers. Erratic animal behavior cannot be predicted and occasional fence penetration can occur. Therefore, DARE Products, Inc. assumes no liability for animal containment, injury or the consequences for the misuse of the equipment.

**Note:** The fence hot terminal is either indicated by a red knob or a lightning bolt symbol (⚡) and the ground is indicated by a black knob or an arrow symbol (⬇️).

**SPECIFICATIONS, FEATURES, AND APPLICATIONS**

- 6V, 4.5Ah sealed lead acid rechargeable battery
- 9V solar panel
- **Easy Battery Check** Feature – quickly test your battery voltage
- **Automatic Battery Saver** Feature – conserves battery when too many dark days
- 0.06 Joule output (not stored, but actual output joules onto the fence)
- **Recommended** for steel and aluminum wire, small animals, and clean fences. This means there are very few high weeds in contact with the wire.
- **Limited applications** with poly wire/rope/tape and larger animals
- Easy mounting for T-post, round post and flat walls

**Take care of the 6 following details and you will prevent many hours of extra work.**

1. This solar energizer is intended for fences made from either steel or aluminum electric fence wire where few weeds are in contact with the wire, and is intended for small animals. This energizer has limited application with polywire, polyrope, and polytape and large animals.
2. **Grounding** - Carefully install a complete ground system. Most electric fence failures are caused by an improper ground system (see Diagram #1). In many applications this solar energizer only needs one 4 foot ground rod if less than 1 acre of metal wire fence is used and the earth is semi-moist.
3. **Connections** – Carefully connect lead out wire, ground wire and fence line splices. This is the **second most** common cause of electric fence failure. Use clamps, split bolts and taps for securing wire connections. Make sure all connection surfaces are of bare, shiny metal (see Diagram 2, Wire Splice and Connections).
4. Use adequately insulated hook-up wire (rated for at least 20,000V) where the hot wire must travel underground. Never use standard household insulated wire, which is typically rated for only 600 volts or less.
5. Maintain at least 75 feet from buried and above ground: utility company ground rods, water pipes, metal siding, telephone wire and stock watering tanks.
6. Finally, it is very important that an animal’s first experience with an electric fence shock is one of respect. Some animals require more than one shock experience for lasting respect of the fence line. Always train the animal to the fence prior to unsupervised entry into pastures by insuring that the animal’s first approach to the fence is slow, without stress and that an effective repelling shock is experienced.

**Tools Needed**

1. Hammer or Screwdriver – for mounting energizer on wood post
2. Wire cutters – to cut and strip insulation
3. Post driver – to install ground rods and posts
4. Digital volt meter – for electric fence testing and troubleshooting

**Accessories Needed**

1. 1 to 3 galvanized ground rods – minimum 4 feet by 1/2” (minimum) diameter
2. 1 to 3 ground rod clamps
3. Insulated underground hook-up wire – 25 feet (20,000V rating)
4. Solar energizer
5. Line clamps
6. Highly Recommended: 1 lightning choke and 1 lightning diverter or a combination choke and diverter. Lightning is the number one cause of failure for electric fence energizers.

**READ STEPS 1 THROUGH 5 BELOW BEFORE INSTALLING YOUR ENERGIZER**

**Installation STEP 1: Charge the Battery**

**WARNING:** Do not charge battery with a 12V automobile battery charger as this will damage the battery. Only a 6V lead acid rechargeable battery charger, or the solar panel, can be used.

Ensure the switch is in the OFF position, and mount the energizer on a post, facing SOUTH for maximum sunlight throughout the day. (The 6 volt battery comes pre-installed and pre-connected so no terminal connection is needed)

Put the energizer switch in the CHARGE position, and allow it to fully charge for 3-4 days to ensure the battery is fully topped off, before you begin to use the energizer. After each day you can test your battery voltage, and if it is 6V or higher (5 flashes) then your battery is fully charged. Your 6V battery has an average life of 3.5 years.

**Easy Battery Check Feature (test your battery while it’s in your energizer)**

<b>Easy Battery Check</b>	
<b>Initial Power-on Flashes Represent Battery Voltage</b>	
<b>Battery (V)</b>	<b># of LED flashes</b>
<b>5-5.25V</b>	<b>1</b>
<b>5.25-5.5V</b>	<b>2</b>
<b>5.5-5.75V</b>	<b>3</b>
<b>5.75-6V</b>	<b>4</b>
<b>6-6.25V</b>	<b>5</b>
<b>6.25-9V</b>	<b>6</b>
<b>9v and higher</b>	<b>LED stays on</b>

We are the first energizer company to add the **EASY Battery Check** feature. Start with the energizer switch in the OFF position. Wait at least 15 seconds. Now, put the switch in the ON position. Carefully watch the number of flashes from the lens. Refer to the label on the side of the energizer or the below table. Example: 5 flashes at power up means the battery is between 6V and 6.25V.

**The two battery voltage extremes:**

Battery voltage less than 5V – The front LIGHT will not flash at all and the energizer will not turn on. Charge the battery in the sun.

Battery voltage greater than 9V – The front LIGHT will stay on constant

**TEST** – Prior to connecting the fence wire between your fence and the energizer fence terminal, you should ensure it works. Move the energizer switch to the “ON” position. Watch the energizer front lens for a red pulsing light. The initial pulses, after power on, represent the battery voltage

(Easy Battery Check mode). After the battery voltage pulses there will be about a 3 second off time before the energizer starts to put high voltage pulses onto the fence terminals.

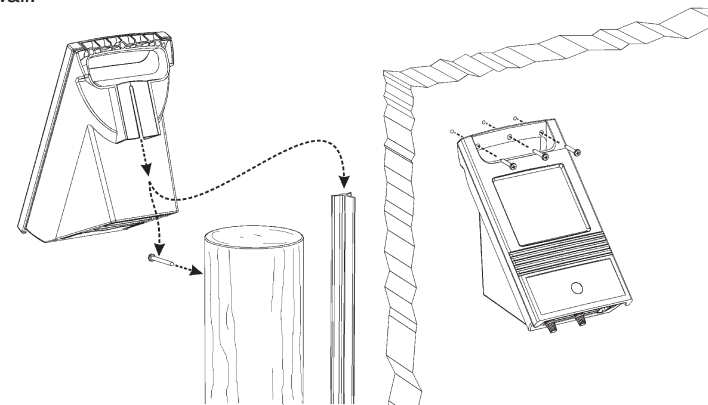
**Automatic Battery Saver Feature (to conserve energy when there are too many dark days)**

This is an automatic feature that is not adjustable. Let’s say you have had too many dark cloudy days and the battery is draining. In this case the energizer senses the low battery voltage, and extends the pulse off time to conserve the battery. The pulse time will start at 1.4 second between pulses for a fully charged battery, and be 2 seconds for a battery that is almost drained.

**Installation STEP 2: Mount the energizer**

On the back of the energizer is a built in mounting bracket. Face the solar panel **due South** (in the northern Hemisphere), out of the way of trees, buildings, and other objects that will cast a shadow on it during the day. Do not mount your fence controller on the ground.

- **T-Post** – This is the common mounting means. Slide the back of the energizer bracket over the top of the t-post and the mounting is done.
- **Round wooden post** – First, put a large headed nail into the post. Next, carefully slide the screw head into the slot in the energizer mounting bracket. Lastly, use the center hole in the energizer handle, and a small head nail to better secure your fencer, if desired.
- **Wooden wall** – If you have a flat wooden wall, that faces south and gets sunlight all day, then you can use some nails in the two outermost holes in the solar energizer handle to mount this on a flat wall.



**Installation STEP 3: Connect energizer ground terminal (black) to your ground Rod/s**

The “ground system” is 1 or more highly conductive rods driven into the soil and connected by wire to the ground terminal of your fence energizer. The ground system allows current to flow through the soil to complete the circuit needed for delivering an effective shock.

1. Locate an area of soil for placing ground rods that contains good conductive earth (not sandy or rocky). Soil that is moist throughout the year is best. For this solar energizer the ground system is typically near the post used to mount the energizer, when possible.
2. Locate ground system a minimum of 75 feet away from: Utility company (electric, gas, water) ground system, underground water pipe, metal water tanks, and metal siding on building (minimum 25 ft. away).
3. Drive one 4 foot by 1/2” (minimum) galvanized ground rod. If more than 1 ground rod is used ensure they are 10 feet apart in a straight line. Leave 6 inches above the ground for securing ground clamps. Mark the area as a hazard.
4. If more than 1 ground rod is used connect the ground rods, in a series, with one piece of continuous 10 to 14 gauge galvanized wire. The ground hook-up wire should be equal to or larger than the diameter of the fence line wire.

**Note:** For this solar energizer, if your ground system is on moist to semi moist soil, and the fence is less than 1 acre in size, then 1 ground rod may be sufficient (You will know if your animal touches the fence and detects a shock). For more than 1 acre, or for dryer soil, you may need 2 or more ground rods.