FARM HAWK™

ELECTRIC FENCE ENERGISER

Instruction Manual

Model: 2.5D-1

Designed and Made in Australia by

STARLOGIXS®

Table of Contents

Package Contents

1 x Main case
1 x Solar Assembly
1 x Screw to attach solar assembly
2 x Connection Leads (1 Earth, 1 Fence)
1 x Manual

Fitting the Solar Assembly

Refer to Diagram 1 (Page 3)

1) Align the solar assembly with the main case as shown below and slide straight down. Ensure dovetails on solar assembly engages behind ribs on main case to form a secure connection.

2) Secure in place with the supplied screw as shown. Do not over tighten the screw.

3) Plug the cable from solar assembly into plug on the back of the main case. Only finger tighten locking ring on the plug.

Scan our QR Code for a video demonstration:

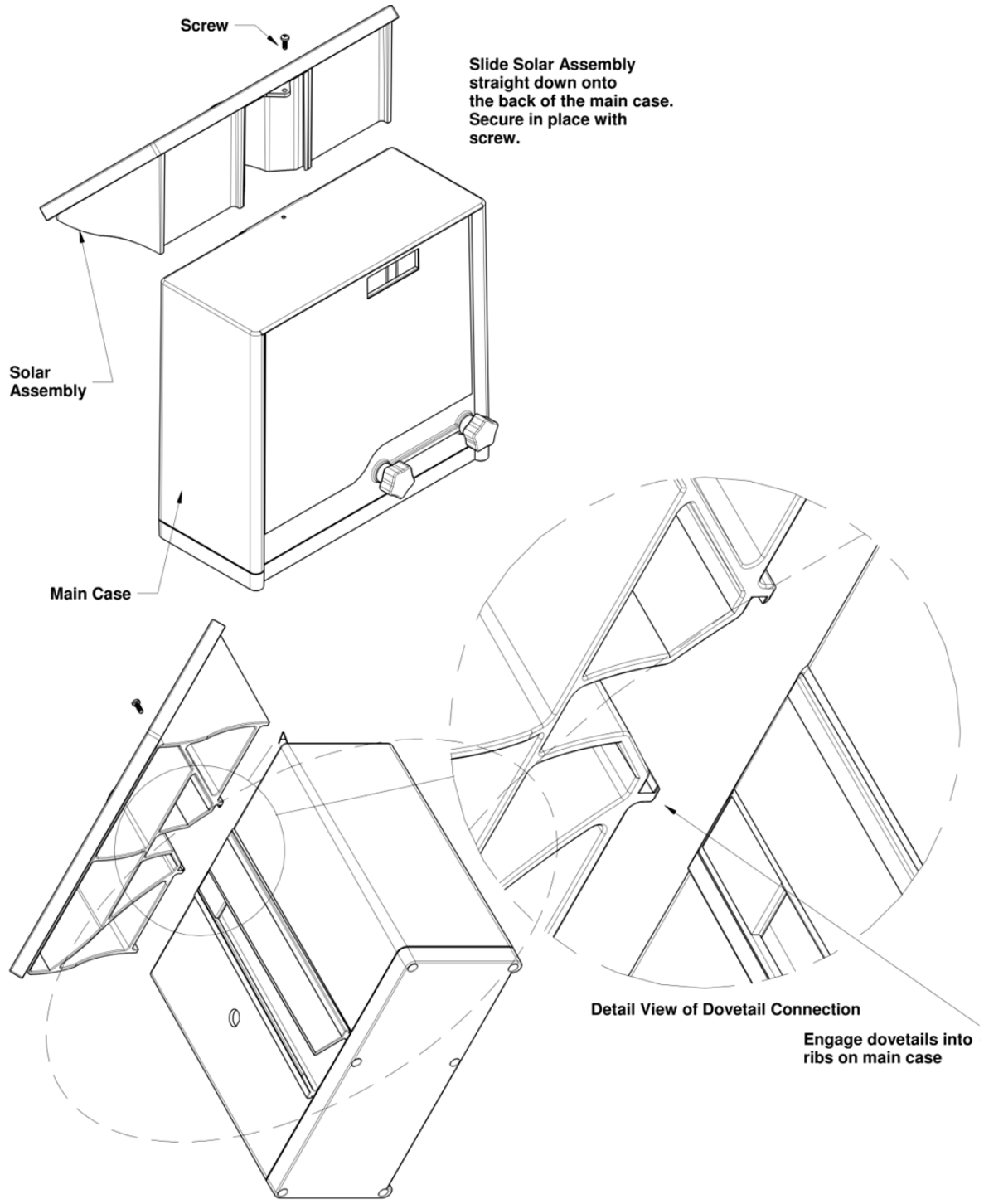
Alternatively, this video can be accessed via – https://youtu.be/SyEfAA6YUms

Setting up the Energiser

Find a suitable place where the energiser will be in full sun all day. Make sure the solar panel is facing North. The energiser may have been stored in its' box for quite a long time between manufacture and the time you purchased it, so it is always a good idea to place it in full sun facing North and leave it switched **off** for at least one full day. This gives the solar panel a chance to fully recharge the battery before it is put into service.

The energizer can be conveniently supported on a steel star picket using the bracket molded into the back of the main case.

Diagram 1


Screw
Slide Solar Assembly straight down onto the back of the main case. Secure in place with screw.
Solar Assembly
Main Case
A
Detail View of Dovetail Connection
Engage dovetails into ribs on main case

Connecting the Fence & Earth Leads

To connect the Fence & Earth leads, unscrew and remove each black nut located on the unit. Connect the red lead to the fence terminal and replace corresponding knob. Connect the black lead to the earth terminal and replace corresponding knob.

Operating the Energiser

Press the power button and the centre bars in the display will flash on for 0.5 seconds. Release the power button when you see the centre bars in the display. The pulse dot in the middle of the display will flash on for each fence output pulse.

Hold down the display button and the two left hand digits of the display will show fence volts in kV (1000's of volts), and the two right hand digits will show current flow into the fence in amps. When the display button is released the display will go blank to conserve battery charge, and only the pulse dot in the centre of the display will flash.

To switch the energiser off, hold down the power button for about 2.5 seconds and the dot on the right hand end of the display will illuminate then fade out. The pulse dot in the middle of the display will stop flashing.

Scan our QR Code for a video demonstration:

Alternatively, this video can be accessed via - https://youtu.be/4Svha_i1lIw

Earthing the Energiser

The earthing system will play an important role in the efficiency of your energiser and is also critically important in case of lightning strike.

The earth connecting lead should be kept as straight as practical and never coiled or bundled up. If the lead is too long for your installation then cut it shorter. Leads that have sharp bends or are bundled up will not conduct properly during a lightning strike and this will compromise the effectiveness of lightning protection circuitry in your energiser.

With portable solar energisers the earth lead is usually clipped to one of the earth wires in the fence. However, in dry conditions and certain soil types this is not always ideal. If possible locate the energiser in an area where the soil is damp. In soils that conduct poorly it may be beneficial to drive an earth stake deep into the ground and securely wire the fence earth wire to the stake to provide a good earth. Use a short straight wire between the stake and the fence earth wire. Several of these earth points could be established around the farm and the energiser then attached at these points as required.

Fence Construction

The construction of rural electric fences are subject to the following standards: AS/NZS 60335.2.76:2019 and IEC 60335-2-76 Ed3, MOD

The points below are a summary of the relevant clauses and should be adhered to when building an electric fence system on your property. A complete list of requirements can be found in the above referenced standards.

1). An electric fence must not be supplied by two separate energisers. If two parts of a farm fence system are supplied by two different energisers, then there must be a 2.5m (8'3") spacing between the nearest points of the two parts.

2). Barbed wire must never be energised. Electric wires can be added to a fence containing barbed wire if the electric wire is supported off the side of the fence at a distance of at least 150mm (6"). The barbed wire should be earthed at regular intervals.

3). An electric fence earth stake should maintain a 10m (33') distance from any mains or telecommunication earth.

4). Connecting leads between the energiser and fence that run inside buildings must be well insulated from the building frame. Connecting leads run underground shall be high voltage cable and installed so the effects of animal hooves, tractor wheels etc. sinking into the ground has no detrimental effect.

Connecting leads must never be installed in the same conduit as mains leads or telecommunications cable. Always maintain good spacing between connecting leads and mains cables.

5). Where possible avoid overhead power lines. If the fence wires or connecting leads have to cross under an overhead power line then as far as possible try to cross at right angles. Connecting leads and fence wires must never exceed 3m (10') height near overhead power lines. The chart below shows the minimum clearance to power lines:

Power Line Voltage V	Clearance m (feet)
Less than 1000	3 (10')
Between 1000 and 33000	4 (13')
Greater than 33000	8 (26')

6). Any part of an electric fence installed along a public road must be identified with signs at regular intervals. These signs must be firmly attached to posts or attached to the fence wires. These signs must be yellow with black markings at least 25mm (1") high and either show an approved shock hazard warning symbol or the words "CAUTION: Electric Fence"

7). Any gates across public roads or pathways must not be energised, and adjacent energised wires must carry warning signs.

Fence Conditions

The conditions of your fence affects the performance of your energiser. As below:

Heavy Fence Conditions	Typical Fence Conditions	Light Fence Conditions
Flighty, Untrained Animals	Typical Farm Animals	Trained Animals
Lots of Grass Touching Fence	Some Grass Touching the Fence	No Grass Touching the Fence
Less than 4km	Up to 8km	Up to 25km

Pulse Repetition Rate

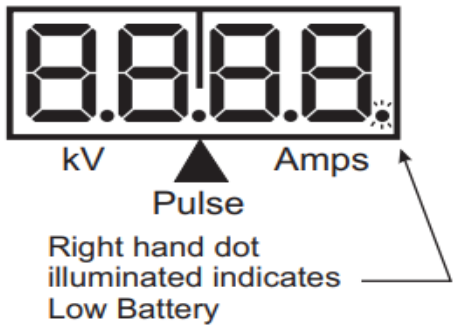
During the day when the battery is receiving charge from the solar panel the energiser will pulse once every second. At night or during periods of low solar charge this pulse rate is automatically extended to once every 1.5 seconds, to conserve battery charge.

Low Battery

If the battery charge falls to a low state then the dot on the right hand end of the display will illuminate. If the battery charge falls to a critically low state the energiser will automatically switch off to protect the battery.

As your energiser ages the ability of the battery to store charge may degrade. If at some point the unit is showing low battery constantly or too often, or it keeps switching off then the battery may need replacing. Before replacing the battery check the solar panel connection plug and wiring is in good order. Make sure the solar panel is clean and facing north in full sun for the entire day.

To replace the battery remove the six screws on the bottom of the main case and remove the bottom of the main case. Slide the battery out and disconnect the wires. When fitting a new battery take particular care to fit the wires with the correct polarity. That is: make sure the red wire goes to the battery positive. When refitting the bottom of the main case make sure all seals are in place and do not over-tighten the screws.

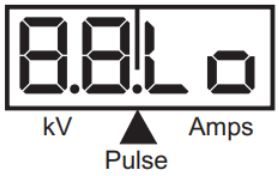


Battery type is 12V 7AH rechargeable gel cell. If the battery is leaking or bulged it must be replaced and the old battery disposed of properly. Never use a non-rechargeable battery.

To dispose of old batteries tape both terminals and drop off at a designated collection site. If battery is leaking seal in plastic bag before disposal.

Low Fence Voltage

If the letters LO appear in the Amp output window this indicates the fence voltage is very low. It is usually an indication of a short in the fence and not a fault in the fence energiser. The D-Pulse Function may not always work if LO is displayed.



D-Pulse Technology

Solar energisers have always had their pulse output energy limited by the energy produced by the solar panel, so they could either have a low energy pulse output or a very large solar panel. The ideal situation is to have the convenience and portability of a small solar panel with a high energy output pulse. The StarLogixs D-Pulse technology is the first solar energiser to achieve this.

The D-Pulse technology sends a low energy pulse onto the fence just like any conventional energisers, however it monitors the fence and if an animal touches the fence it immediately sends a much higher energy pulse. In this way it conserves power consumption and allows the energiser to run from a small solar panel, only sending high energy pulses when needed.

The system is intelligently controlled by a microprocessor that can ignore slow changes in fence conditions like increasing moisture or grass growth into the wires. If a sudden change occurs (maybe a tree limb falls and partially shorts the fence) it can learn this as a new 'normal' condition and revert to low energy pulse outputs until an animal again touches the fence.

The system requires no operator setting or input. Simply connect to the fence and switch the unit on and let the in-built microprocessor do the rest.

Fence Issues that can Impact D-Pulse Performance

The D-Pulse technology works by sending a low energy pulse, and monitoring fence voltage for sudden changes. The assumption is that animal activity involving fence contact will on average be a very low proportion of the total time the energizer is running. So a small battery and solar panel can provide power for the small energy output pulses and the occasional animal contact.

However, if something about the fence produces intermittent sudden voltage drops on the fence at a higher than expected proportion of the energizer run time, then this can cause the battery to become flat. FarmHawk has a feature where it switches off if the battery becomes critically discharged. This protects the battery from damage due to excessive discharge.

Some examples of fence issues that might cause problems are:

1. **Intermittent shorts**. Something like a section of tape fluttering in the wind and contacting something earthed like a star picket would be an example.
2. **Intermittent connections**. A length of fence will always provide load to the energizer no matter how well insulated it is, and fence voltage is related to fence load. Higher fence load equates to lower fence voltage. If a connection in the energized wire is poor and intermittently disconnects then the fence load as seen by the energizer will fluctuate, and this could be interpreted by the D-Pulse technology to be an animal contacting the fence. Sometimes hot tape will develop breaks and cause this problem. Also corroded or rusty joints in wire can be an issue.
3. **Insulator breakdown**. If an insulator intermittently breaks down then it will provide a path to ground and reduce the fence voltage. D-Pulse would interpret this as animal contact and send high power pulses.

There are many possible scenarios of fence issues, but the above should give a general idea of what to look for and help in identifying specific issues.

Replacing Parts

We recommend you scan our QR codes to view instructions for replacing parts.

Scan our QR Code for a video demonstration:

Replacing Battery:

Alternatively, this video can be accessed via – https://youtu.be/9re3c-08L1s

Replacing Solar Panel:

Alternatively, this video can be accessed via – https://youtu.be/ZjDPClxQ3uc

Lightning Protection

Due to the nature of lightning, there is no absolute guarantee that any electrical system can be made to withstand a lightning strike. It depends on the proximity of the strike to the equipment, how conductive the medium between the strike and the equipment is and also the severity of the lightning strike. However, there are things that can be done to reduce the effects of lightning, and these schemes can be quite useful to reduce the frequency of damage from lightening.

This energiser contains a co-ordinated lightning protection circuit that is designed to reduce the damaging effects of voltage surges due to lightning on the fence conductors. This circuitry is self resetting and requires no service during the life of the product.

Warranty

Your FarmHawk D-Pulse energiser is guaranteed against faulty workmanship or components for a period of twelve months from the purchase date. For warranty contact your local sales agent with proof of purchase date.

This warranty does not cover damage or failure caused by or attributable to Acts of God, abuse, misuse, improper maintenance, floods, lightning or any repairs other than those provided by an energiser StarLogixs service facility, or transportation cost.

StarLogixs is not responsible or liable for indirect, special or consequential damages arising out of or in connection with the use or performance of the energiser or other damages with respect to any economic loss, loss or profits, loss or revenues or profit, cost of removal, installation or re-installation.

Specifications

Stored Energy:	Low Energy Pulse Output = 0.27 Joules High Energy Pulse Output = 2.5 joules
Solar Output:	Greater than 150mA in full sun
Output Voltage:	No Load – 8000V 2000 OMH Load – 5400V 1200 OHM Load – 4100V
Battery:	12V 7AH Sealed Lead Acid – 6.5mm spade terminals
Pulse Repetition Rate :	1 second in daytime – 1.5 second at night
Current Draw:	Low Power Pulse with Solar Charge – 36mA Low Power Pulse no Solar Charge – 22.5mA High Power Pulse – 187.5mA Unit Switched Off – 5.5uA

Australian Standards

Designed & built in Australia to Industry Standards

AS/NZS 60335.2.76:2019 and IEC 60335-2-76 Ed3, MOD Standards

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Warning

Not suitable for use by small children or those suffering heart issues. As electric shock from the unit may present a danger.

This appliance is not intended for use by persons (including children) with reduced physical sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety.

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