

# Low Voltage Shutdown Relay Switch

See more about this product on YouTube at: <https://youtu.be/YgbLa5TUWDM>

Model: [LVS100A](#)

Date: 04/2018

Page: 1 of 2

The LVS or Low Voltage Shutdown Switch is pre-set to shut down at 50% of battery charge. Although we don't recommend you change these settings (see page 2 of these instructions).

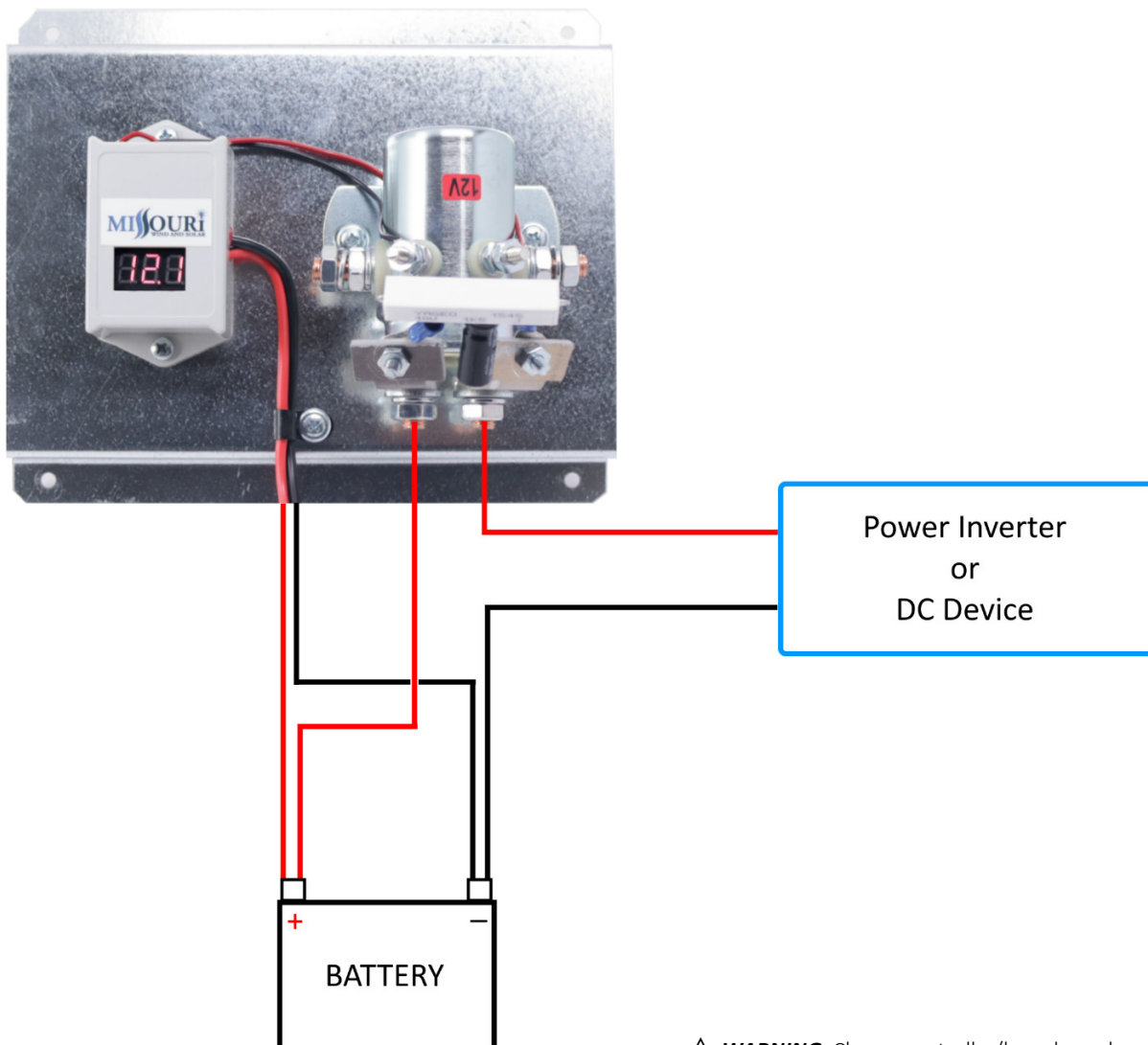
We also recommend using the VSD in addition to our [desulfation devices](#) to dramatically extend battery life.

Battery Bank Voltage	Shutdown Voltage	Return Operation Voltage	Maximum Wattage
12V	12.1V	12.5V	1,200W
24V	24.2V	25V	2,280W
48V	48.4V	50V	4,320W

Use 1 gauge or larger cable to and from the LVS device. Place the LVS closer to the batteries than the inverter.

If the lugs you are using are too big to fit the relay, simply shave down the lugs slightly with a file or grinder.

Mount the LVS vertically only (standing up). It will not operate horizontally (laying down).



**⚠ WARNING:** Charge controller/board may have sharp edges.

# Low Voltage Shutdown Relay Switch

See more about this product on YouTube at: <https://youtu.be/YgbLa5TUWDM>

Model: [LVS100A](#)

Date: 04/2018

Page: 2 of 2

**Although it is NOT recommended**, here is how to change the parameters of the ON and OFF state of the controller for the LVS. Keep in mind that it is important to know your batteries, loads, and charging sources to have a clear understanding of your system. If you change the settings of the LVS too low, you may shorten the life of your batteries. If you set the LVS too high, you may experience rapid ON OFF cycles of the relay. We have set the LVS at a general and reasonable High and Low voltage, ON OFF to your devices in line with the LVS. You may wish to allow your batteries to get to a lower level before disconnecting your DC devices. You may wish to let your batteries get to a higher level before re-connecting your DC devices. It is your choice.

## *For example:*

For a 12 volt system, the LVS is set at 12.5 and 12.1 volts. It would be reasonable to adjust these settings to 14.4 and 12.8 volts. With these settings you will NOT be powering your DC devices when your batteries are below 12.8 volts but will only resume powering your DC devices above 14.4 volts, then down to 12.8 volts which would be a full operational cycle. In other words, the LVS will wait until your batteries are fully or almost fully charged before restoring power to your DC devices. Your batteries will last a long time with this configuration because you will only discharge your batteries 10% or less each cycle. If your system is sized correctly, this will be the case even at nighttime. A good rule of thumb is to have one solar panel for every two batteries in your battery bank. A wind turbine can put power back into your batteries all night long when solar is not producing anything.

An unreasonable adjustment to the LVS would be 12.0 and 10.0 volts. Instead it would be better to do 12.5 and 10.5 volts, allowing your batteries to charge more before returning power to you DC devices.

If you have a small battery bank and have heavy loads drawing from them, then simply adjust the low down from 12.1 to 11.5, for example.

**Important! Do not hold any buttons down for more than 1 second!** If you hold down for over 4 seconds, the relay will reverse its ON/OFF state. Typically you will see the green light and will hear a 'click'. To undo this, simply hold the same button down for more than 4 seconds until you hear the 'click' and see the green light.

## **Button explanation:**

- Tapping the left button 'SET' (under the cover) will scroll left to right. Tapping the right button 'ENTER' will change the digit you have landed on.
- Scroll with left 'SET', change value of digit with right 'ENTER'.
- As you are scrolling you will see the digit you are on flashing (about 1 time per second).
- Do not hold any buttons down for more than 1 second!

## **The factory settings for:**

- 12 volt system- 12.5 and 12.1
- 24 volt system- 25.0 and 24.2
- 48 volt system- 50.0 and 48.4

The first screen should be 12.5v (relay release (power ON from Battery to DC Devices)) then the next screen 12.1v (relay energize (power OFF from Battery to DC Devices)). You can change one or both values.

You cannot have the lower voltage higher than the higher voltage and vice versa.

You should not have the lower and the higher voltage too close together as the controller may operate the relay rapidly within a short interval of time. The third screen is a voltage correction (adjusted against another volt meter so the controller can accurately display the real voltage from the battery). The fourth screen should be operating mode (no values will be flashing). Leave the controller alone.



**Blow Hard + Shine Bright**

332 Cobble Stone Drive, Seymour, MO 65746  
[www.mwands.com](http://www.mwands.com) • (417) 708-5359