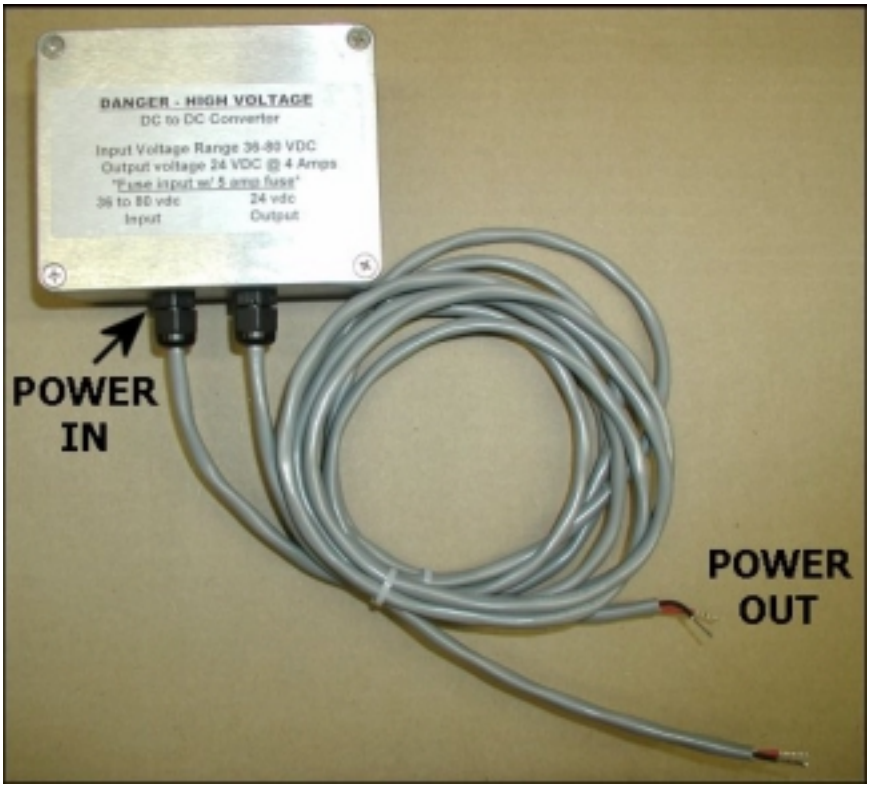
48-24 HD: Wattsun Linear Voltage Converter for 48-Volt PV Systems

SPECIFICATIONS:

- **Maximum Voltage Input = 80 VDC**
  Power from a 48 VDC battery bank or from three, 12 VDC nominal, modules in series.
- **Voltage Output at Maximum Input = 30 VDC under load.**
- **Output Current Maximum = 4.0 A.**
- **Fuse the 48-24 HD positive input wire with a 5 amp DC-rated fuse.**
  Appropriate fuse to be provided by your installer.
- **All wire color coding is: RED = POSITIVE (+) , BLACK = NEGATIVE(-)**

FUNCTION:
The maximum voltage input for a standard Wattsun Tracker Controller is 50 VDC. PV arrays and battery banks that have a "working" voltage greater than 24 VDC nominal can exceed the 50 VDC threshold. The 48-24 HD regulator limits the voltage input to the tracker controller to a maximum of 24 VDC.



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INSTALLING THE 48-24 HD:

1) Disconnect the main battery bank or PV array circuit so that no power can flow through any wires you are working on.

2) Connect the output of the voltage regulator (longer cable exiting the regulator) to the input power wires of the Wattsun Tracker Controller. IE: Red to Red (+), Black to Black (-).

   NOTE FOR BATTERY BANK CONNECTION: GROUND THE NEGATIVE LEG of the converter /controller connection to equipment ground. That will resolve any potential "noise" issues that could affect controller performance.

3) Fuse the input of the voltage regulator (shorter cable side) with a 5 amp DC rated fuse. The fuse is inserted in the positive (Red,+) lead of the input wire.

4. A) Battery bank connection: Connect the fused input side (two-wire, shorter cable) of the voltage regulator directly to the output of a 48-volt battery bank. Battery positive to fused red input. Battery negative to voltage regulator input negative.

4. B) PV array direct connection: Connect the fused input side (two-wire, shorter cable) of the voltage regulator directly to the output of three, 12- volt modules in series. When connecting directly to the PV Array: You will want to make the connection on the lower side of the 4-module string. IE: From the negative of array to the positive tap of the third module, in the 4-module, 48 VDC nominal string.

5) Open the Wattsun Solar Tracker Controller and set switch #2 to the UP (PV) Energy Integration setting.

6) Reconnect the main battery bank or PV array circuit so that power can flow through the voltage regulator and Wattsun Solar Tracker Controller.

WARNING!

- **Connection to the output of 4-modules in series will exceed the 80 VDC maximum input of the voltage regulator. The 48-24 HD will be damaged and cause the Wattsun Solar Tracker Controller to fail. Warranty does not cover this damage. Both parts will have to be returned to the factory for repair!**

- **Never apply power into the 48-24 HD output wires. Warranty does not cover this damage. Damage can occur and it will have to be returned to the factory for repair!**

- **A self-resetting fuse is incorporated in the 48-24 HD. If the output wires touch each other and are shorted, the interior fuse can blow and will disconnect the power output of the regulator. If this happens: Repair the output short then reset the fuse. Disconnecting power to the regulator resets the fuse. Wait a minute for the fuse to cool. Then reconnect power to the regulator.**

CAUTION!

CONVERTOR CASE MAY GET VERY HOT UNDER HIGH LOAD OR SHORT CIRCUIT. DO NOT MOUNT TO A FLAMABLE SURFACE SUCH AS WOOD. DO NOT LET CHASSIS COME INTO CONTACT WITH OTHER WIRES AS HEAT MAY MELT THE INSULATION.

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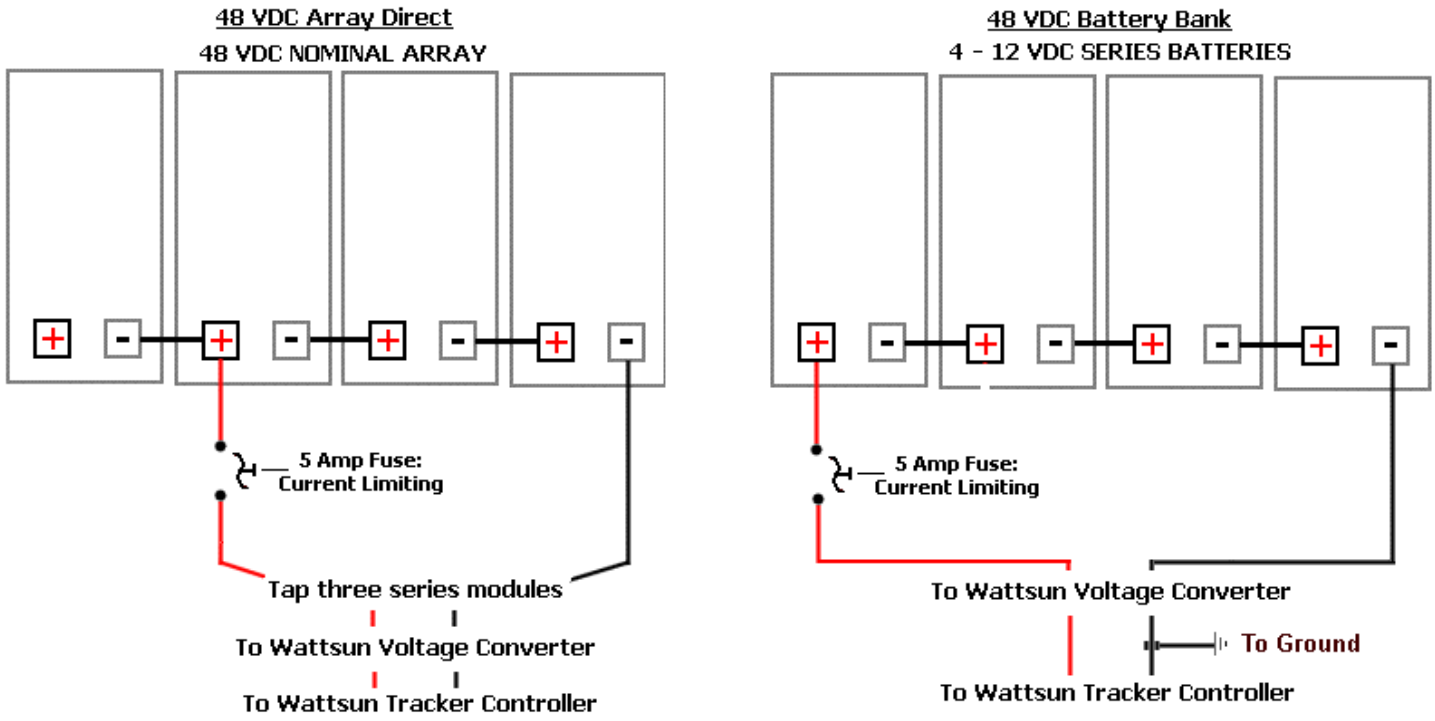
Wiring Diagram for a Wattsun 48-24 HD



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