

AIMS POWER PV SOLAR QUICK DISCONNECT SWITCH

The AIMS PV Solar Quick Disconnect Switch gives your solar system convenient extra safety and flexibility when maintenance is required on your system. This quick disconnect switch is also ideal for applications such as cabins or vacation homes that don't require delivery of constant solar power. Simply disconnect your solar array and reconnect when needed. This switch is 1600V with 2 – 32 Amp separate circuits compatible with small and large off-grid or grid tied solar systems.



INSTRUCTIONS

1. Use 10 AWG PV cable and MC4 connectors.
2. Install disconnect switch as close as possible to the PV array.
3. Mount in any orientation.
4. Turn knob counter clockwise to disconnect power.



Vmp to Calculate Current

Formula: Total Panel Power (watts) / Total Vmp of Panel * # of panels in series = Input Current in amps

Example of Current calculation:

- 190 Watt panels * 6 panels = 1140 watts of total panel power
- 190 Watt panel's Vmp rating = 18.7 V (check your panel Vmp rating)
- $18.7 * 6 = 112.2$ V total panel Vmp
- $1140 \text{ Watts} / 112.2 \text{ V} = 10.16$ Amps

The disconnect switch includes 2 – 32 Amp circuits so for this example, the disconnect switch is compatible.

Voc to Calculate Voltage

Formula: Number of panels in series * Voc of panel = Voltage

Example of Voltage calculation:

- Voc of panel: 22.4 V (190W)
- Number of panels in series: 6
- $22.4 \text{ V} * 6 = 134.4$ Volts – Disconnect switch is rated at 1600V, which is well within voltage range.

**Solar tip from AIMS Power. How do I size a charge controller?

You can also use this same calculation above to calculate Voc to size your charge controller. All charge controllers have a voltage operating range. Most AIMS Power's charge controllers operate up to 150V. In the example above, you have a total Voc of 134.4. Simply connect 3 of your panels in series. This will give you two strings of 3 panels each. Next, connect the two strings in parallel and you are ready to harvest solar energy.

Formula: Total panel power (watts) / Vdc = amps

Using the same 190 Watt panel example from above and assuming a 24 Vdc battery bank.

- $1140 \text{ watts total panel power} / 24 \text{ Vdc (or 12, 36, 48 Vdc etc.)} = 47.5$ amps

You will need a charge controller over 47.5 amps that can operate at 24 Vdc. AIMS Power offers charge controllers ranging from 30 Amp up to 100 Amp that can charge 12/24/36 or 48 Vdc battery banks.