

# POWERmini USB Explained

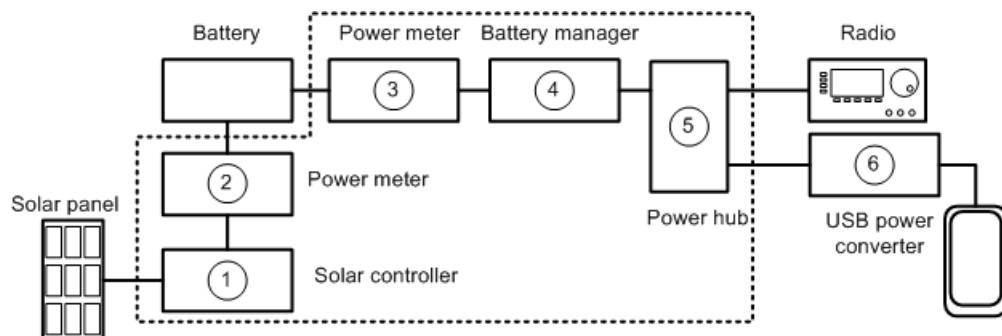
At first glance POWERmini USB is a solar charge controller, but it is much-much more than that, it is a product designed specifically for portable radio communications. Do you know whether your solar panel is keeping up with your battery use? Well you could monitor the battery and keep checking but wouldn't you rather be alerted if your battery is getting low and spend your time making contacts?

POWERmini USB is the successor to the popular POWERmini. This new version is based upon customer feedback and adds higher power handling capability (35A total) and dedicated USB 1.5A charger port.

Here is what POWERmini USB does.

- Solar Controller
  - Manages the solar panel output charging the battery and preventing the battery from leaking back into the panel
- Solar Panel power monitor
  - Tells you how well the panel is working and how much charge it has delivered to the battery
- Battery management
  - Monitors the battery and alerts you if the battery is getting too low. It will even automatically disconnect to protect the battery from deep discharge
  - Automatically disconnects the radio if the battery voltage is too high to protect your radio something you need to watch for if you have that bad combination of a bad battery and a good solar panel!
- Measures the load current
  - Tells you how much power your radio and accessory has been using
  - Turns off the output if the current gets too high
- USB charging
  - The built in smart USB 2.0/3.0 compliant charger port allows you to charge your phone or tablet with charge current up to 1.5A.
- System reporting
  - Realtime report of solar panel performance and operating time
  - Graphical indication of battery voltage and cut-off limits
  - Graphical indication of instantaneous load current
- Alarms
  - Visual and audible indication of low battery voltage or pending disconnect (optional)

You could cobble this all together as in the figure below and still not quite have it all.

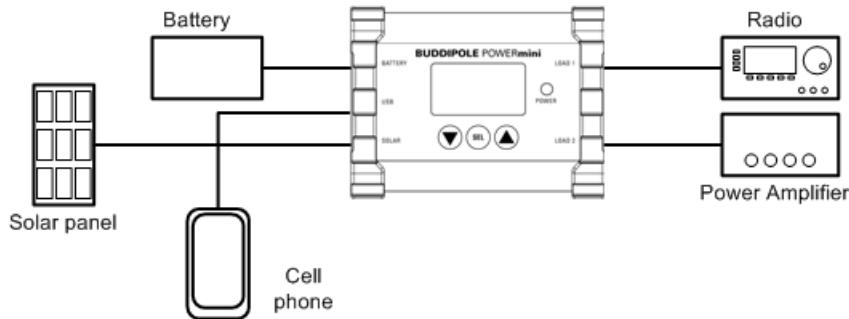


What you end up with is six boxes each connected by DC power cables (eight in total). This is more than most people want to mess with so people usually don't bother with making a comprehensive DC power system.

You can get all of that functionality however with POWERmini in a single unit with only the five power cables you would expect (only three if you just have a radio and solar panel). Fewer cables, less clutter and less time to set it up.

1. Solar panel
2. Battery
3. Radio
4. Cell phone /tablet
5. 12 V Accessory

Take a look at the figure below:



Not only is the USB charger integrated into the unit but it has also freed up the second load port to power another radio accessory such as a 100W PA.

POWERmini USB is not just a highly integrated DC power system however, it is also small, efficient and robust. Physically it is enclosed in a tough custom extruded aluminum housing with custom slip resistant end caps, all made here in Oregon.

Electrically it handles solar panels up to 150W and batteries from small to large, with Lithium-ion or Lead-Acid battery chemistries. It was designed with a very low RFI footprint too so it won't get in the way of your radio use.

POWERmini only measures 4.45x3.2x1.3 inches so it will easily slip into your backpack or carry-on.