

Base Station - Application Note 102

POWERplus in the shack

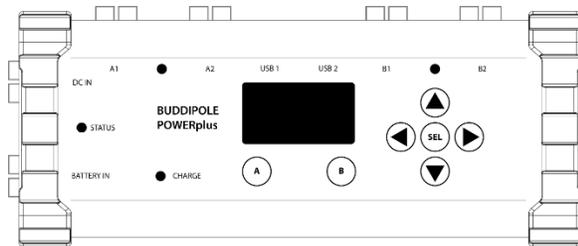
A basic home amateur radio station consists of a transceiver, power supply feed line and antenna. Unsurprisingly there is much thought put into the antenna system, but little thought put into the power system, after all you just need a 12V power supply don't you?

This application note explores what benefits of a more feature rich power system can provide.

POWERplus provides power monitoring, protection against power failure, power monitoring and power distribution all in one small package.

POWERplus Provides Performance Metering

If your power supply has a volt meter, it may show all is well, but by the time it gets to the radio things don't look so good. This is a critical point because even 100W rigs take a lot of current and the percentage drop in voltage due to a combination of things can be considerable.



Monitoring input current and voltage can show unexpected issues with connectors and wiring, while monitoring output current can show issues with how well your transmitter is working both of which can provide early warning of power problems.

Battery Operation

More competitive pricing and the reduction in size of batteries makes it more appealing to include battery backup capability. POWERplus supports a variety of battery sizes for both Lead Acid and LiFePO4 battery types. Changeover between DC and battery power is seamless and the built battery charger makes sure the battery is ready to step in when primary power is disrupted.

Circuit Protection

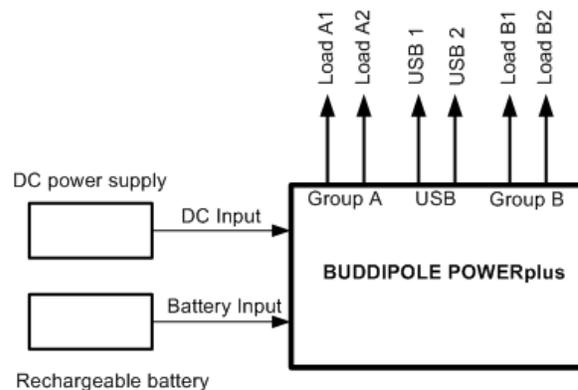
The large gauge wiring required for low voltage systems means that considerable current can flow with fault conditions. When faults occur wires can melt with serious safety implications. POWERplus has built in electronic power monitoring that can instantly shut off the output power. After you have found the fault you can then quickly re-establish power without having to find spare fuses.

Compact and Reliable

All of the POWERplus functions could be provided by using a collection of different items. The unique aspect of POWERplus is that they are all included within a rugged custom enclosure. A similarly capable system using individual items would require several power monitors, a battery charger, automatic power changeover and a power distribution system. Each of those being individually connected by separate power cables, is not just difficult to deal with but a big knock to system reliability. Each of those connections loses a little power and increases the possibility of failure.

Next Generation DC Power System

Connect an external DC power source and a battery to POWERplus and you have a complete DC power system including battery charger, USB chargers and power distribution.



See other application notes to see how each of these functions can apply to your DC power system.