Acting like a fuel gauge for your battery, our monitor gives detailed information about the energy left in your battery. The six-LED display shows the state of your battery, over voltage (flashing red and green LEDs) and under voltage (red flashing with audible warning). In use, the monitor can be programmed to remain on all the time or to sleep - drawing virtually no current. It can be woken with a single button push. It has been designed to give accurate information on the most common battery types used for portable radio operating.

**Detailed Information**

Pre-programmed to monitor power supply types:

1. PP3/MN1604 9 Volt Alkaline
2. Lead Acid 12 Volt (gel-cell/SLAB)
3. LiPO/LiIon 3 cell pack
4. LIPO/LiIon 4 cell pack
5. AA 12v 8 cell Alkaline battery pack
6. Standard 13.8V power pack

Visual display on unit gives a good indication of the level of charge left in each battery. An audible and visual low voltage alarm helps avoid over-discharging batteries. The monitor is supplied with labels showing the profiles above to help the user to recall which is which!

As an option, unit comes with Powerpole connector fitted for an extra £1.00.

**Using the Battery Monitor**

The module will monitor your battery's voltage, and give you detailed and accurate information via the six LEDs. The input voltage can be as high as 21 volts, and as low as 4 volts.

**To install the monitor:** Simply connect the red wire to the positive side of the battery or circuit, and the black wire to the negative side. The device is protected against reverse polarity, so if it is connected wrongly, it cannot be damaged. We can optionally fit a Powerpole connector at no additional cost

Double sided foam tape is supplied on the rear of the monitor for attachment – make sure the surface you apply it to is clean and dry, and if you warm the tape before peeling the backing, you will get better adhesion – note that the tape is 'one shot', so be sure about placement before sticking down. The monitor is not waterproof, but will withstand a degree of splashing.

By using one our Powerpole splitter leads you can monitor the "on load" voltage when you are using your radio equipment.

**Using the monitor:** When you power up the monitor, the six LEDs light quickly in sequence to show that they are all working, then a single LED will light to indicate the battery's status. After approximately 10 seconds, the monitor will go into **Sleep**, and in this state it draws virtually zero current. Therefore, you can leave the monitor permanently installed, and there is no need to have a separate switch on the supply line.

**To wake** the monitor from Sleep Mode, press the switch once. Again, all LEDs will light quickly, the voltage will be displayed, and after 10 seconds the module will return to Sleep Mode.

If you wish the monitor to remain **fully awake**, press the switch once during the 10 second period (**press and hold until the 6 LEDs begin to light, then release**). The unit will now remain permanently on until you choose to turn it off or disconnect power.

To return the unit to **Sleep**, press the switch once (press and hold until the 6 LEDs begin to light, then release) and after a moment, the module will return to Sleep.

**Voltage profile selection:** As you can see below, your monitor has six in-built 'profiles'.

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6. Standard 13.8V power pack

These profiles allow you to fine tune the monitor to your application - they have been carefully designed for amateur radio applications. Each profile is slightly different in the max/min range it covers. By default, your monitor is set to Profile 1.

To change profile, **press and hold** the switch until all the lights come on then go off again. **Now release**, and the first two (green) LEDs will flash four times. You are now in **Select** mode.

A single LED will light to indicate which profile is selected. If you now press the switch **briefly**, the LED will move forward on, press again **briefly** and it advances again. When the LED that corresponds to the Profile you want is lit, **press and hold** the switch until the last two (red) LEDs flash four times, **then release**. The unit will now return to normal display mode (and will be fully awake). The monitor **remembers** the last profile used.

Should you ever accidentally enter **Select** mode, just **press and hold** the switch to exit back out. If you want to confirm which profile is selected, just go into Select mode, and come back out again without making any changes.

To confirm that you are (or are not) in **Select** mode, try briefly pushing the switch. In **Select** mode, the LED will advance one step.

**What do the lights mean?**

- Red and green flashing alternately- over voltage. Basically the monitor is seeing a voltage that is higher than might be expected for the battery type selected. In some cases this voltage may be enough to damage your radio equipment.
- First Green - battery at 100% (only lights briefly if at all)
- Second Green - battery at 95%-99%
- First Orange - battery at 60-95%
- Second Orange - battery at 40-60%
- First Red - battery 20-40%
- Second Red - battery <20%
- Second Red Flashing with audible alarm - battery discharged. Stop use.

In programming mode:

- First Green - PP3/MN1606 profile
- Second Green - Lead Acid/Gel Cell profile
- First Orange - LiPO 3 Cell profile
- Second Orange - LiPO 4 Cell profile
- First Red - 8 x AA Alkaline

- Second Red - power-pack mode

**Warnings**

- ***Never*** 'test' the monitor on a battery charger or any other mains powered adaptor, regardless of whether the output voltage seems safe. It works – connect it to your battery only.
- You can charge the battery while the monitor is connected but ***always*** have the monitor connected to the battery – never only to the charger.
- **Do not** connect the monitor in series with anything else. If you are unsure what this means please check.
- You can check the monitor on a proper regulated variable bench power supply, but never exceed a continuous input voltage of 16.0v. Note that results on a switched mode power supply may not be as accurate as with a linear regulated supply.