Configuration and Operation of the Bisun R3 caving light unit

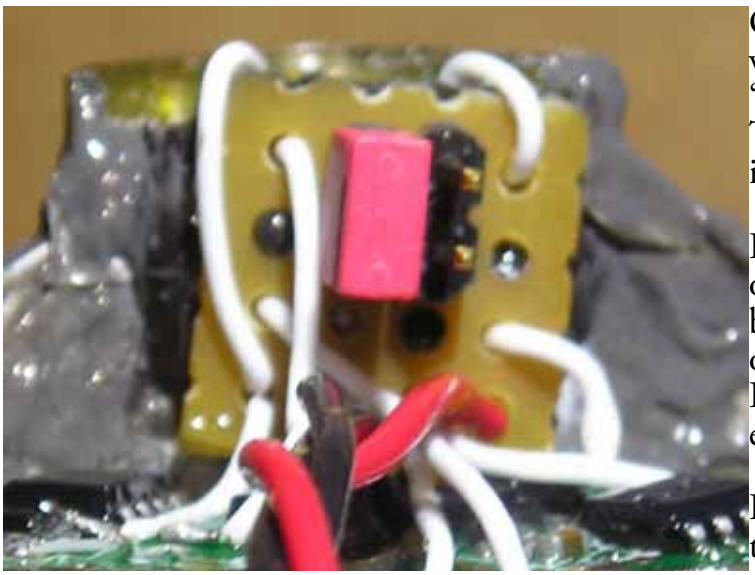
The R3 has seperate electronics for each LED, with optional partial linkage between the LEDs.

The same type of electronics is used for each LED, with the same power settings, so it is only necessary to consider a single LED and its electronics.

The R3 has two (black) wires to connect to the rotary switch in an Oldham or similar headset, and should be connected with one wire to each 'side' of the switch. The remaining (red) wire should be connected to the positive power input from the battery.

In operation, a beam runs at one of three power levels, of approximately 20/55/150 lumens, and is on only when its switch is closed.

Briefly turning a beam on and off will advance it to the next power level in sequence, with the sequence being low->medium->high->low-> etc.



On the back of the R3 unit is a small board with some protruding pins and a small 'jumper' (seen as a red object in the picture). This jumper is used to control beam blending on the R3.

If the jumper is placed across a vertical pair of pins, as shown here, there is a degree of beam blending, so that whichever LED is on, some power is shared with the other LED, with different amounts of blending in each of the two vertical positions.

If it is placed horizontally or is absent, then the beams are fully independent.

Beam blending is very much a matter of individual user taste. Some people might like a 'pure' flood beam, while some might find a bit of spot added to a flood gives it more throw without taking away from the flood quality.
It is suggested that a user experiments with the possible options (two degrees of blending and no blending) to see which they find most useful.

The power supply for an R3 should be in the 3.6-4.5V range, which realistically means a 3-cell alkaline, NiCd or NiMH battery, a nominal 3.7V Lithium pack, or a 4V Lead-acid battery.

The control circuits are fully electronically protected against reverse voltages that could occur due to an incorrect installation into a headset, or from misconnection of a battery.