

Using your Bisun Flexitwin V3

In all operation modes, all operation of the light is by manipulation of the power switch on the left hand end of the host lamp unit.

Though a 'classic mode' operating like the standard 14LED insert is available, most users will use the Flexitwin in one of its 'variblend modes, and by default the V3 comes configured to run in a 4-power/4-beam-blend variblend mode.

In variblend mode, the unit runs with the power switch in the centre ('off') position, and the switch allows the total power level and the beam-blend to be controlled independently. This gives great flexibility while keeping operation simple, and giving excellent tolerance to poor switch contacts.

Power control

Changing power levels is achieved by brief down-and-back movement of the power switch to nudge the unit into the next power level in sequence, the sequence being a descending one from highest to lowest and then jumping back to the highest.

To turn the unit off, the switch is moved down and kept down.

After two seconds with the switch down, the unit switches to an extra-low power 'pilot' setting on the flood beam, after which returning the switch to the centre position will cause the unit to turn off completely.

Beamshape control

Beamshape control operates similarly, with brief up-and-back movements of the power switch cycling through a selection of beam blends, with the sequence starting from a pure flood, with an increasing shift towards spot beam content, and finally rolling back round to the pure flood.

To temporarily engage full spot beam for checking out distant targets, the switch is moved upwards and kept up.

After 0.75s, the spot beam comes on at full power and stays on as long as the switch stays up. When the switch is centred, the unit goes back to its previous settings (including going off it was off before spot beam was engaged).

Turning on

The V3 can be turned on by briefly nudging the switch in either direction and back to the centre position.

If turned on by moving the switch down, if the switch is returned to centre within 2s, the unit comes on at the last-used settings. If the switch is held down for more than 2s it will return to off when returned to centre.

Operation is similar if the switch is moved upwards - if the switch is returned to centre within 0.75s, the unit will return to the last-used settings, if held up for more

than 0.75s, the full power spot beam will be engaged for as long as the switch is kept up and the unit will turn off when the switch is returned to centre.

Power ranges

A power *range* is a set of available output power levels

Three output power ranges are available for every operating mode.

The standard power range gives good brightness with a maximum power chosen to give good runtime even at the highest level (6-8h with decent rechargeable cells).

The high range has a maximum output twice the standard maximum while widening the steps between power levels to give extended runtime at low power levels.

The boost range has the same settings as the standard, except that the highest power setting is a boosted one - for the first minute after selecting high power or changing the beam blend at high power the light runs at a double-power setting, after which it gently and imperceptibly drops to the standard high power level. In normal use, unless high power is being repeatedly re-selected, in the boost range the runtime will be basically the same as in the standard range, but with more light available for short periods, and so is the best range for most users.

Operating modes

There are multiple variants of the variblend mode available, which all work in a similar way but give extra choice to the user. They differ in whether there is a low battery warning, the number of beam blends, and the output/power consumption settings.

There is a classic mode which operates like the 14LED modules, with the unit always off when the switch is centred. This has a fixed low blend, with flood-heavy beams selected by having the switch down, and spot-heavy blends selected by having the switch up, and with power changed by brief turning off and back on.

Mode	Type	Power Levels	Beam Blends	Battery warning	Output
1	Variblend	4	4	No	Normal
2	Variblend	4	4	Yes	Normal
3	Variblend	4	3	No	Normal
4	Variblend	4	3	Yes	Normal
5	Variblend	3	3	No	Economy
6	Variblend	3	3	Yes	Economy
7	Classic	3	Fixed	No	Normal
8	Classic	3	Fixed	Yes	Normal

The 'economy' mode has power levels 2/3 of the equivalent normal power to extend the runtime by 50%

Power consumption

The power consumption at a given power level is independent of the beam blend chosen. In normal power settings, these consumptions in mA and approximate light outputs in lumens are:

	Extra-low	Low	Medium	High	Boosted High
Standard range	22mA/10lm	55mA/26lm	140mA/65lm	360mA/160lm	N/A
Boost range	22mA/10lm	55mA/26lm	140mA/65lm	360mA/160lm	700-1050mA/320-450lm
High range	26mA/11lm	80mA/35lm	230mA/110lm	700mA/320lm	N/A

(*In boost mode, while in the initial boost period of high power, the power consumption is ~700mA except for the 50:50 flood:spot mode, where it is ~1050mA

In economy settings, the figures are:

	Extra-low	Low	Medium	High	Boosted High
Standard range	15mA/7lm	36mA/16lm	90mA/40lm	235mA/105lm	N/A
Boost range	15mA/7lm	36mA/16lm	90mA/40lm	235mA/105lm	450-650mA/200-290lm
High range	17mA/8lm	50mA/23lm	150mA/68lm	450mA/200lm	N/A

The figures above are for the light output of the LEDs. All LED optics (as used on the spot beam) cause some light loss, so the spot LED+optic combination has an output a little lower than the above figures would suggest, though the large spot optic in the V3 has very low loss.

Selecting a mode

To select a mode, first open the headset to get access to the configuration button on the front of the mounting plate, and make sure the light has power.

- Set the power switch to select the power range desired (see below)
 - Press the configuration button (above the spot LED)
 - The spot LED will flash to indicate the current selected mode (1 through 8).
 - Return the power switch to the centre position if it is not there already
 - If the mode displayed is the desired one, go to step h, otherwise briefly press the configuration button to advance to the next mode
 - Go to step c
 - If the button is pressed and held down, the current selected mode will first be displayed by flashes and then the mode will be advanced, indicated by extra flashes, as the button is held down. If the button is kept held after mode 8 is reached, the mode will reset to 1. Once the button is released, see step c.
 - When the desired mode number is reached, operate the main power switch up or down to exit configuration and save the mode for future use.
- Finally, close the headset.

Selection of the power range depends on the main switch when entering setup. Switch down - standard range, central - boost range, up - high range

Batteries

Typically people will run the unit from 4x NiMH cells or 4x Alkaline cells.

The dummy AA cell is provided mainly for people who choose to use '1.5V' lithium cells, which have a rather higher voltage than alkaline cells, and where the use of 4 cells would be inadvisable due to excessive voltage (as well as being unnecessarily expensive, since 3 such lithium cells would be more than sufficient).

Duos vary significantly in terms of the quality of the various electrical connections between cells and cell holder and between the battery box and headset contacts.

In some Duos with perfect connections, a V3 will operate perfectly well on 3 NiMH cells using the dummy AA cell provided, but in many Duos, voltage losses in the wiring and contacts would limit the maximum output.

If using 1.5V lithium cells, the dummy cell must be used.

Low battery voltage warning

This warning option is included for users running from 4xNiMH cells, to give them advance warning of battery depletion and to allow them to swap cells in good time before any become fully flattened. When the input voltage drops below a pre-set threshold, the unit will give five 'off' pulses, kept brief for safety.

There is no automatic power level changing, just the warning. Only one warning will be given per set of batteries, as this avoids repeated warnings becoming annoying.

If unsure if a warning has occurred, briefly disconnect power to allow a repeat.

The threshold is set at a level well above the voltage typically needed to run the LEDs at maximum power, so significant runtime will remain after this point.

The warning threshold is not designed for use with 3xNiMH cells, and will activate early if using them. Users who habitually run from 3xNiMH cells should select a non-warning mode if they find the warning distracting.

Thermal limiting

The Flexitiwn has built-in thermal limiting to ensure the unit does not get too hot if running at the highest power levels, especially in warm environments.

This operates subtly, smoothly adjusting the power down (or back up) to keep the internal temperature acceptable, rather than stepping to different power levels.

Redundancy

For added peace of mind, the Flexitiwn has redundant electronics to provide a low power level to the flood beam whenever the switch is down, irrespective of the rest of the control circuitry.

Photography and slaves

The low-power flood beam that the V3 produces with the switch left down is flash-slave-safe, and so may be useful for photographers or their assistants.

For more information email sales@bisun.co.uk

Any suggestions for new features will be welcome - user suggestion was the reason for the 'economy' modes for group use to make the need for changing batteries on a trip