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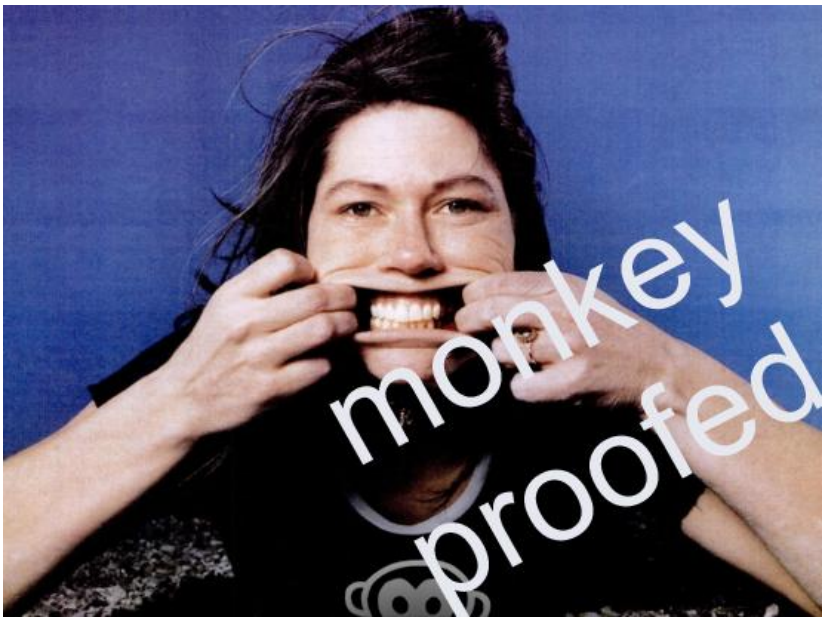
V42 (omni) r02 – Operation Guide



ver.v42.r02.1 jrb2020

v42 Overview

The v42 has two main LEDs. A focused **spot LED** and a wide angle **flood LED** with optic. In normal operation, the v42 has **4 light settings** as factory default.

The v42 also has a low output 'moon' setting (flood LED operating at very low output) for maximum run time, and battery charge level indication (5 green smd LEDs).

The v42 can be programmed using optional **Customduo infrared remote control**. From **1-9 light settings** can be specified, and the level of light provided by each setting can be configured by the user. The **spot** and **flood** LEDs can be operated separately or blended together. Each LED can be operated at **v.low, low, medium,** and **high**, offering a choice from 24 possible light combinations.

V42 Operation

To switch between the settings, use the down switch on the Petzl Duo. Switch **on-off-on-off** etc, to move between settings 1-2-3-4 ... 1-2-3 etc, in a forward looping sequence. Setting 1 will blink momentarily whenever selected to make it very easy to determine where you are in the sequence, and which setting has been selected. The v42 has zero battery consumption when switched off.

The **factory default light settings** are;

1. **low flood -** hands and knees caving !
2. **high spot** - route finding in large passages
3. **medium flood -** general progression around cave
4. **high flood & medium spot -** if you really must !!

Moon Mode and Battery Charge Level Indication

Moon mode is provided by the main flood LED, offering a very low light (approx. 8 lumen) for maximum run time, and battery charge is indicated by 1-5 green smd LEDs.

Operating the switch **very quickly, on-off-on ('double switch')** will select moon mode, and the smd LEDs will indicate the approximate level of battery charge for a few seconds. 5 green LEDs indicate fully charged and 1 green LED indicates batteries very flat. The spot LED will also blink 1-5 times so battery charge level can be determined without removing helmet.

Moon mode will continue to operate until the lamp is next switched off. This low level light is well suited to underground camp, expedition, small passage caving, long prusiks and emergency.

3 second mode memory

The v42 features a 3 second 'first' mode memory. When lamp has been on for more than 3 seconds in any setting and is switched off, then it will automatically restart at the first setting when next switched on.

This can be changed to 3 second 'last' mode memory (see module programming below). When lamp has been on for more than 3 seconds in any setting and is switched off, then it will automatically restart in the last used setting when next switched on.

Thermal management

The v42 incorporates thermal management in order to protect the module from over temperature operation. If the module is too hot, it will automatically step the power down to a lower level of light in order to protect the LED, and remain at this level until next switch operation.

The green smd LEDs will scroll to indicate that module is under thermal regulation (but you would need to remove helmet to see this, so as not to cause irritation to the user). Lamp function is not locked, and simply changing light setting will restore full operation, though be aware that unless a lower light setting is used for a few minutes in order to provide time for the module to cool, then thermal management may quickly reactivate. In reality, you are probably only likely to see this when running high settings as the v42 uses thermally efficient LEDs and provides an effective heat sink.

Programming

The v42 can be easily configured to individual requirements, using the **infrared remote control**. To program lamp, point the controller at the Petzl Duo front window. The infrared receiver is on the v42 module.

Programming is only possible when the moon setting is ON (double switch), once the LEDs have finished sequence to indicate the level of battery charge. In order to enable programming, the remote must initially be operated within 30 seconds. This opens a rolling 2 minute programming window, reset whenever remote is operated. If no programming activity has occurred for 2 minutes (i.e. the remote has not been used), then the programming window is automatically closed.

When the remote is operated (and programming window open), the green smd LEDs will indicate programming activity. The middle green LED indicates that a button push on remote has been received by v42 module. The left and right green LEDs indicate selection of a valid function, and dancing green LEDs indicates that a change has been confirmed.

Number of light settings

The v42 has **4 factory default light settings**. This can be modified from **1 to 9 settings** depending on user requirement. To select the desired number of light settings enter # followed by the number of settings required and OK to confirm, **<#(number of settings 1-9)OK>**.

If the number of light settings selected is less than the current number, then any settings no longer required will be taken from the end of the current sequence. For example, if lamp is currently configured with 6 settings, and 3 settings are selected, settings 4-6 will be removed.

Any additional settings will be added to the end of the current sequence, immediately before the off position. These will be set at **low flood** (50mA), unless they have previously been programmed, in which case they will be set at the last stored configuration.

Configuring a light setting

The v42 module allows the light level provided by the spot and/or flood LEDs to be modified for each setting, to individual requirement.

The spot and flood LEDs can be operated separately or blended together. Each LED can be operated at **v.low (50mA), low (150mA), medium (350mA),** and **high (700mA)**, offering a choice from **24 possible light combinations**, as per following table (settings 1-4 are the four factory default levels).

(default settings 1-4)	**off - flood (0mA)**	**v.low flood (50mA)**	**low flood (150mA)**	**med flood (350mA)**	**high flood (700mA)**
off - spot (0mA)	n/a	25 lumen	**70 lumen (1)**	**170 lumen (3)**	300 lumen
v.low spot (50mA)	25 lumen	50 lumen	95 lumen	195 lumen	325 lumen
low spot (150mA)	70 lumen	95 lumen	140 lumen	240 lumen	370 lumen
med spot (350mA)	170 lumen	195 lumen	240 lumen	340 lumen	**470 lumen (4)**
high spot (700mA)	**300 lumen (2)**	325 lumen	370 lumen	470 lumen	600 lumen

To modify a light setting, enter ***** followed by the number of the specific setting you wish to modify **<*(setting number 1-9)>**. This will only respond to the number of light settings currently specified (as described above). For example, if the lamp currently has 4 light settings, then only controller buttons 1-4 will respond.

When a valid light setting is selected, use the arrow buttons on the remote to select the desired level of light for each LED. The level of the **spot LED** is set using the **<up>** and **<down>** arrows, and the level of the **flood LED** is set using the **<left>** and **<right>** arrows. Either of the LEDs can be set as off, but not both. When you have selected the desired light levels of spot and flood LEDs, then enter **<OK>** to confirm. This procedure can be repeated for any specified light setting.

While using the arrow buttons to select light level of the LEDs, the green indicator LEDs will show the selected power level (0-4 LEDs illuminated). The flood and spot LEDs also light up at significantly lower levels than during actual lamp operation! These levels are simply representative of the 4 power settings of each LED, set at lower level in order to protect your vision when programming. However, even at these lower levels direct eye exposure should be avoided.

3 second 'first' mode or 3 second 'last' mode

To switch between 3 second 'first' mode and 3 second 'last' mode, enter **<*(0)OK>.** Each time this is performed, the v42 will toggle between 3 second 'first' mode (the spot LED will briefly light up) and 3 second 'last' mode (the flood LED will briefly light up).

Battery charge level indictor

The battery charge level indicator is set for 4xAA cells (Ni-mh or alkaline), but can be re calibrated for 3.7v li-ion battery arrangements (suitable for DIY Duo DIY li-ion conversions .... not for the faint hearted or technically clumsy!!). This requires a cheat code to be entered using remote control programmer. The cheat

code is #3742#. To return the battery charge level indicator back to standard AA operation, a factory setting restore is required (see below).

Restore factory default settings

If at any point you get in a pickle, then enter **<#(0)OK>** to restore v42 to factory default settings.

Fitting Guidance

CustomDUO LED upgrade modules will work with all variants of the original pre 2018 Petzl Duo. Modules are not available for the 2018 DuoZ and DuoS, which are factory sealed and not designed to be upgradeable.

Prior to fitting it is of course necessary to remove original reflector, bulbs, LED modules, etc. Unscrewing the grey bezel in order to remove the front window can sometimes prove challenging if Duo has been left to rot, but inevitably they do come off. *(Hint, if you can't do it then find someone with strong hands. The trick is to squeeze and turn at the same time !!!)*

CustomDUO Omni modules are a simple push fit into the Petzl Duo lamp housing. Electronic connection is via the 2 pins on reverse of module which locate in the Duo bi-pin bulb / LED connection socket. Orientate Omni module in the body of your Duo, aligning the contact pins, and push fit module into place. Ensure the module is sat down fully in Duo body. Test operation of module. If module does not work immediately, then read about battery **polarity** below.

To conclude, refit the Duo front window. Some silicone grease on the seal and threads is always a good idea. Holding window in position with thumb, refit the grey plastic bezel until the Petzl correct fitting alignment marks (on top of the lamp) are correctly orientated. The marker formed on the grey screw bezel should be somewhere in between the two markers formed on the top of the yellow lamp body.

Polarity

Very occasionally we come across an early (pre 2004) Petzl Duo which has been wired up back to front, and the polarity is wrong for the Customduo LED modules. This affected some, but not all early Duos, and these Duos are now extremely rare. Polarity conscious LEDs hadn't been considered at this time so it wasn't important which way around the positive and negative were wired at manufacture. If you fit your CustomDUO module and it does not immediately work, chances are that your Duo is wired up back to front. The solution is simple. **Reverse the polarity of the batteries in the holder**, i.e. **positive to negative, and vice versa**. The module will then work. CustomDUO modules are polarity protected, so you will not have damaged the module by finding this out. If this does not work then please contact us. There is invariably a solution.

Batteries, power and light output

As standard, the Petzl Duo uses 4xAA batteries (some use 4x C cells). It is important to note that the highest power settings of the v42 module, i.e. 700mA flood and 700mA spot, 1400mA combined, may not be achievable dependant on battery type (NiMh or Alkaline), battery quality / condition, and level of charge. Lamp condition is also a factor. If the batteries cannot deliver e.g. the 1400mA required, the lamp will

operate as normal, but not at full brightness. The slight upside of this is that reduced power draw from batteries by default will result in extended operating durations.

In our opinion, 1400mA is at the limit of what can be realistically achieved with Petzl Duo and the best AA cells, given the battery technology currently available. For best result we suggest low self discharge NiMh batteries, such as the 'Eneloop' brand.

The regulated power settings levels for modules are given in mA. To determine the approximate regulated duration of light on your battery arrangement at a given power setting, simply divide the mAh capacity of your cell pack by the mA power draw at a given setting. For example, using 2100mAh NiMh low self discharge AA batteries at a power setting of 350mA will give a regulated duration in the region of 5-6 hours.

The v42 has zero battery consumption when switched off, so there is no requirement to disconnect batteries. However it is probably best practice to do so when not in use for more than a few days, to reduce any stress on battery contacts in Duo box.

High Power LEDs

The v42 uses high power LEDs and is fairly bright. Do not look at LEDs in operation. Eye injury can result. Be especially careful of this when programming light settings. Do not shine your light into other people's eyes, particularly at close range. For more information, see Cree website.

Warranty

The v42 has a standard 1 year warranty against defects in material and manufacture. If your product or accessories fails to operate to specification during the Warranty period we will arrange for your product to be repaired or at our discretion replaced. This warranty is subject to reasonable wear and tear (in our opinion) and correct use and maintenance of the product as applicable. We will not provide warranty repair / replacement if the problem, in our opinion, resulted from use outside the product specification, modifications or alterations, incorrect connection, operation or fitting where applicable, external damage due to accident, impact/ abrasion, leak, poor storage, etc. We will always endeavour to keep any costs due to damage to an absolute minimum.

Disclaimer

Caving is not without risks. We would not presume to tell you how to kit up and use your equipment. What we will say is that the v42 is not, and should not be considered as, Personal Protective Equipment (PPE). How you interpret any guidance that we give on the use of our products and how you use our equipment is entirely at your own risk. Lights can fail without warning, and we take no responsibility for any consequence of this. Always carry a reliable and accessible independent backup light source for any light crucial activity / function. Good caving practice is your own responsibility. We do not take responsibility for any accident, injury, liability or cost, to yourself or that you may cause to anyone else, or to any property. This applies to caving or any other function for which you choose to use and place reliance upon our product.

Please note that you personally assume full responsibility for the risk of property damage, bodily injury or death which may occur from the use of this product in any manner whatsoever. If you are not able, or not in a position to, assume this responsibility, or take the risk, then do not use this product. We are not responsible for the consequences (direct, indirect or accidental) or any other type of damage befalling or

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