

## Three variants of the new Lamp

The headlamp is compatible with battery voltages from 3.5V to 9V.

When using primary alkaline or lithium batteries the pack can be used down to 3.0V, but starting at about 3.7V the light gets dimmed.

When using rechargeable batteries it is possible to set the discharge cut off voltage by an external resistor. Below this threshold the medium beam (light up of the room light) starts to blink: the faster the lower the voltage. So nobody is surprised by darkness, but gets warned to change the accumulator.

All ten head lamps are ready now. It's up to you, one out of ten testers and end users, to chose how to use the head lamp.

I can offer you three different variants:

### Variant A

I use Petzl ZOOM and replace the headlamp by my lamp. The head is tiltable.

Advantage: you can use the lampe with different helmets ant even without for skiing etc..

Disadvantage: This is not as stabil as a fixed caving head lamp and has additional 40g weight for the rubber bands.

The overall weight with four NiMH AA size 2700 mAh is about 370 g.

With variant A you can use Mignon or AA sized cells, alkaline, lithium primary or NiMH-rechargeables only. Lithium rechargeables are not allowed.

Inside of the original battery case of Petzl ZOOM I use a fix mounted holder for four AA cells and a switch allowing to enable or disable the overdischarge protection. You have to change the four AA cells individually.

Depending upon how strong you use the lamp (worklight 1 or 2) one set of four NiMH AA with 2700 mAh will work for 24 or 8 hours continuously.

You need a separate charger to charge up to four AA cells. (If you have problems with that, I can give you advice which to buy).



## Variant B

The head lamp is mounted tiltable but unremovable to the helmet. The battery case – an old Petzl case for flat batteries – is mounted unremovable at the rear of the helmet.



Advantage: The lamp is stable mounted and the weight is smaller than with the rubber band mount.

Disadvantage: This lamp can be used with one helmet only.

The overall weight with four NiMH AA size 2700 mAh is about 330 g.

With variant B you can use Mignon or AA sized cells, alkaline, lithium primary or NiMH-rechargeables only. Lithium rechargeables are not allowed.

I insert a holder for four AA cells loose into the case, which is fixed connected to the cable. The cells can be changed when this holder is put out of the case (captive). I mount a switch inside the case allowing to enable or disable the overdischarge protection.

Depending upon how strong you use the lamp (worklight 1 or 2) one set of four NiMH AA with 2700 mAh will work for 24 or 8 hours continuously.

You need a separate charger to charge up to four AA cells. (If you have problems with that, I can give you advice which to buy).

## Variant C

The head lamp is tiltable and mounted via a changeable holder (old metallic Petzl holder for carbide lamps). A cable of 1 m with a cord grip at the helmet ends with a tough three pole connector. This variant is to be used with battery packs ported in the chest pocket.



Advantage: This variant can be used with all helmets bearing a standard holder, allows a wide variety of batteries to be used and provides the lowest weight on the helmet.

Disadvantage: There is a cable from the helmet to the chest pocket and there is no counter weight at the rear of the helmet.

The overall weight with kable and helmet mount is about 240g.

This variant allows a wide range of batteries ti be adopted, the only restriction is the voltage should not be higher than 10V (nominally 9V) and you have to use the correct resistor inside the battery sided part of the connection to set the adequate threshold voltage.

I provide variant C with an accupack wit four NiMH cells with 3700 mAh and additionally with a bare battery holder for four AA primaries. But you also can use common accupacks for RC cars with six or seven cells or even LiPo-packs with two cells too..

Depending upon how strong you use the lamp (worklight 1 or 2) one set of four NiMH AA with 2700 mAh will work for 35 or 12 hours continuously. This accupack weights about 260 g.

You need a separate charger to charge the accupack. (If you have problems with that, I can buy and equip it with the adequate connector for you).