

# LUPINE®

LIGHTING SYSTEMS



## BETTY X-PRO

### Instruction Manual

(Read before use!)



#### Content of package:

24 W Power-LED Head-Lamp with PCS V11  
Li-Ion battery bag 7.5 Ah / 7.2V,  
Lupine Charger Charger One 2,5 A, 12 V car adaptor,  
CNC machined uni-fit lamp holder with normal/oversized O-ring  
Head Belt with 1,2m extension cord  
Instruction Manual (this document)  
Technical Information PCS V11  
Technical Information Charger One

# **1.) READ BEFORE USE!**

## **General:**

Congratulations! You have just bought the one and only Lupine LED Lamp – no other will give you more light!

The light and charger are ready to use immediately. Please read this instruction manual carefully and completely to familiarise yourself with all the functions. Before hitting the trails, try the system at home first to prevent any surprises while riding. For further details about individual settings of the Betty X Pro please read "*Technical Informations PCS V11*".

As with any other electrical device, there is a slight chance of failure at any time. Please be aware and use with caution.

Lupine accepts no liability for any injuries or other damages arising from the use of this product.

## **Rechargeable Battery:**

The battery is supplied with a very small amount of charge. Before use **it must be fully charged** (see chapter 4 "Charging"). The rechargeable Li-Ion battery will reach its full power after 1 charge cycle.

## **It might become hot!**

The Betty X Pro is not a simple torch. The lamp housing can become very hot if used without airflow. Do not touch the lamp during or immediately after use.

**If lamp is used without any airflow temperature control will reduce light power stepless up to 6 W after some minutes automatically.**

## **Dazzling:**

The Betty X Pro is a powerful lighting system. Always use it with care and with respect for others (especially when mounted to a helmet). Do not look directly into the light.

## **Waterproof?**

All components of the Betty X Pro are waterproof and will withstand even the most extreme conditions. However, it is not a diving lamp and therefore not suitable for use under water.

## **Warranty:**

The two year warranty covers defects in materials or workmanship only. Batteries are not covered by this warranty. Modifications to the light or improper use also voids this warranty.

## **Attention:**

**Used batteries have to be put into especially reserved collection receptacles.**

**Please pay attention that you do not deliberately turn the light to somebody else's eyes. In case the light beam hits your eyes, close the eyes and turn your head away so that you are out of the direct light beam.**

**Don't use any magnifying instruments for light beam testing purposes. In case of commercial usages, the user of the lamp must be instructed by the advice of the International Commission on Non-ionizing Radiation Protection (ICNIRP) and national advices for safety and health.**

## **2.) MOUNTING**

The Betty X Pro is supplied already mounted to the head belt. However if you wish to use the Betty X Pro on a bicycle please read the mounting instructions below:

### **Lamp:**

Mounting the lamp with the O - ring :

If you are feeling strong, use the finger hook method (see fig.1). For others, who prefer the less strenuous method, hold the O-ring with one finger, and push the lamp back until the O-ring can be secured on the hook of the lamp. (fig.2)

**Betty holder comes with the new uni - fit lamp holder, suitable for normal and oversized holders as well, just only the o-ring have to be replaced. Please open the screw for changing the O-ring.**

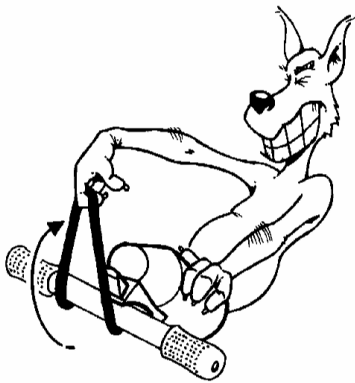


fig.1



fig.2

### **Lamp Left-Right adjustment:**

The mount can be moved by 8° on each side. This helps to adjust the lamp to freeride or downhill bars.

### **Note:**

In order to make sure that the left-right adjustment is still possible while riding, please fix the screw only with a midrange torque.

Now plug the rechargeable battery to the lamp and your Betty X Pro is ready to go.

### **3.) USING THE LIGHT**

#### **Initialising:**

**After connecting the lamp to the rechargeable battery, the software will start a self-test (the 4 LEDs of the PCS will flash) The Power LEDs will flash once. The batteries voltage will be indicated with the blue and green LED. Now the Betty X Pro is ready for use. (Please read also "Technical Information PCS V11")**

#### **Switch on:**

By pressing the PCS switch for the first time, the beam starts running on maximum power. The blue and green LED will glow.

#### **Dimming:**

Pressing the button once, after the light has stabilised, will switch the light to low beam (the blue LED is off). By pressing the button again the light will return to high beam mode.

#### **Switch off:**

You can switch off the Betty X Pro by pressing the PCS button longer than 2 seconds. After you have turned off the lamp ( but battery is still connected ) , PCS will show the gone battery capacity, blue LED flashes for every full ampere hour, every 1/10 ampere hour is shown with the green LED flashing. 4 blue and 3 green flashes means 4,3 Ah consumed power. **Hint:** This works always if the battery is still connected. But if the battery is disconnected, the PCS will start counting newly.

#### **Controlling the remaining light time:**

The electronics of the PCS V11 not only control the high and low beam; they also protect the rechargeable battery against over-discharge and include a low battery indicator.

Low battery is signalled by the yellow and the red LEDs.

When the yellow LED lights:	Significant amount of the capacity is gone!
Red / yellow LEDs and Power LED's blinks:	Light will automatically switch off in a few minutes!

It is a matter of experience to interpret exactly how much time is left after the LEDs light up. Remaining burn time depends on the battery's age and capacity, the operating temperature and the capacity gauge program (Low, Middle, High; see "Technical Information PCS V11").

**Hint:** When the yellow and the red LEDs light up you can increase the remaining burn time with economical use of the high beam.

#### **Reserve tank:**

When the battery is almost empty (yellow **and** red LEDs have been lit for several minutes already) the lamp switches off automatically. By double clicking the switch the reserve tank is activated, which provides some additional hours of emergency light. A flashing red LED indicates the reserve tank has been activated. The performance of the reserve tank also depends on the battery condition.

When the reserve tank is empty, the light will switch off and must not be restarted.

**Caution!** Switching on is not possible at this point. If you unplug the battery and then re-attach it, you will have only unreliable light for some seconds!

**Never store a discharged battery. Recharge your battery as soon as possible!**

**Explanation of the LEDs:**

- Blue LED lights: High beam (Maximum Power)
- Green LED lights: Low beam
- Yellow LED lights: Significant amount of burn time consumed
- Yellow + Red LED blinks: Rechargeable battery almost empty  
**Caution!** Light will switch off very soon without further notice  
- Stop!
- Red LED flashes: Reserve tank activated

**Programming :**

You can adapt the PCS of the switch to your needs. This programming is explained in detail in the "Technical Information PCS V11" and is done exclusively using the switch and LEDs.

**4.) CHARGING THE RECHARGEABLE BATTERY**

**Components:**

The charging system of the Betty X Pro consists of two components:

- AC/DC adaptor ( and included 12 V car adaptor )
- Charger One

The Charger One was developed for use Lupine’s high current Li-Ion rechargeable batteries, but it is also fully compatible with all other Lupine rechargeables (Ni-MH as well as NiCd).

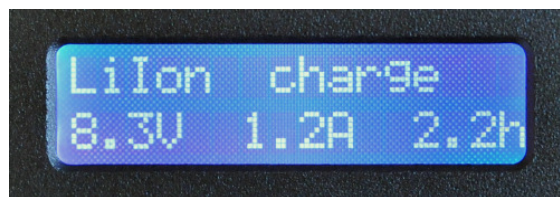
**Connection:**

Plug the AC/DC adaptor into the mains. Plug the adaptor into the socket of the Charger One. After a short initialisation the display will show: "Li Ion ready for charge".



**Charging:**

The Charger One is now ready to charge. Plug the rechargeable battery into the Charger One and charging will start automatically. The first line of its display shows: "Li Ion charge". The information displayed on the second line is explained in the "Technical Information Charger One".



Keep the rechargeable battery plugged into the Charger One until the display reads: "Li Ion full".



Charging is now complete; the battery is full and is now ready for use.

### **Programming :**

It is possible to modify the charging properties of the Charger One to your individual settings. For details see the "*Technical Information Charger One*"

This programming can be done using the small "select" button on the Charger One. If this button is not pressed the Li Ion program will be the default setting and will be used every time you connect the Charger One to the AC/DC adapter. By pressing the select-button you can toggle between the different charging programs for the different types of rechargeable batteries.

For Li Ion batteries only use the Li Ion program (Display: "Li Ion ready for...charge")!

**Note:** The Charger One always defaults to the program that was selected when the charger was unplugged from the power supply.

If the select button is pressed for a period longer than 3 seconds you will access the programming mode. If this has been done by error and the settings have been changed, please do the following:

Unplug the Charger One from the AC/DC adaptor. Do not have the battery connected to the Charger One! Now plug the Charger One to the AC/DC adaptor while holding down the select button. The Charger One display will show its name and version number. Release the button. The Charger One has now been reset to the default setting.

Ensure the display shows "Li Ion ready for...charge". If it does not, toggle to Li Ion mode by pressing the select button (repeatedly).

### **Caution!!**

The Charger One can be used to charge all types of Lupine rechargeable batteries.

**You must not use this charger with unchargeable batteries!! They will explode!!**

The Charger and AC/DC adaptor should not be opened by the user as this will invalidate the warranty.

## **5.) CARE AND STORAGE**

### **Lamp:**

All components should be cleaned with warm soapy water, but do not use a high pressure spray or hose to clean the system. To get all water out of the housing etc. turn the light on for a few minutes.

### **Housing:**

Open the casing. Please open the screw-on lid on the front of the casing: Hold the back part of the casing with one hand, with the other hand, turn the screw-on lid counter-clockwise. Having removed the lid, you can see the lens.

Closing the case. Make sure the O-ring of the back part of the casing is in its correct position. Otherwise the casing will not be waterproof. Then, screw the lid onto the thread. Important:

**The lid must be screwed onto the thread in the correct position. If the thread runs smooth, the lid is in the right position. Otherwise, please stop, re-screw the lid and try again or you might damage the thread. Please be cautious!**

### **Connectors:**

In normal conditions, the connectors do not need special attention. However if you use the light in very humid and/or corrosive conditions they should be greased with the included Dutch grease. **Do not** use contact-sprays or contact-greases! They contain corrosive ingredients that will damage the connectors.

**Transport:**

In case you transport your light in a bag or a box so that the PCS button might accidentally be pressed: **Always unplug the battery from the lamp unit.**

**Storage:**

For short periods of time, store the battery fully charged. **Disconnect it from the lamp unit.** Before using the system again, re-charge the battery fully. If you intend not to use it for a longer period (over 3 months), **we strongly recommend to store the battery in a cold place.** This will prevent the battery from over-discharging.

**6.) TROUBLESHOOTING**

<b>Failure</b>	<b>Caused by</b>	<b>Solution</b>
<b>Lamp does not light <u>and</u> the LEDs on the PCS <u>do not</u> flash during initialisation.</b>	Over discharged battery.	Charge!
	Battery is not or not correctly plugged into the light.	Check all connections
<b>Lamp does not light, LEDs of the PCS <u>do</u> flash during initialisation.</b>	Power LED are faulty	Replace LED insert
<b>Burn times are too short.</b>	Battery was not in use for a long time	Please charge the battery
	Battery is new.	
	Battery is very old	Replace with new battery
	Cold temperatures	Keep the battery warm
	Charger is defective	Replace charger

## **7.) TECHNICAL DATA**

### **Lamp:**

Lamp unit : 135g  
Weight complete with rechargeable battery: 450g  
Capacity of rechargeable battery / Voltage: 7.5 Ah 7.2 V Li-Ion

### **Light output:**

24 W 100% : 1850 lumen  
13 W 55% : 1180 lumen  
9 W 35% : 750 lumen  
2,5W 10% : 420 lumen  
1 W 3% : 240 lumen

### **burn time:**

2 hours 45 min.  
5 hours  
7 hours 10 min.  
21 hours 20 min.  
63 hours

Temperature range: - 25°C - +70°C  
Beam angle LED: 16°  
Burn times may vary depending on battery's age, condition and temperature.

### **Charger:**

#### AC/DC adaptor:

Input: 100 – 240 V~, 50-60 Hz  
Output: 12V=, 2A



#### Charger One:

Input: 12-14 V=, >= 2A from adaptor or in-car adaptor.  
Charging current: 2,5 A max.  
Discharging current: 0.1 – 0.5 A  
Suitable rechargeable batteries: Li-Ion 7.2 V, NiMH / NiCd 2-6 Cells  
Display: 2 x 16 characters, illuminated.  
Connectors: In- and output reverse protected.

## **IMPORTANT NOTES:**

Use of this lighting system might be limited differently from country to country depending on the purpose you use it for. Please do inform yourself about possible restrictions in your country.

The mounting device and the design of the Betty X Pro as well as of the PCS are protected by worldwide patents.

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