

LUPINE[®]

LIGHTING SYSTEMS



PCS V3.3

Technical Information
(Read before use!)



PCS V3.3

(Not suitable for Lupine Edison 5/10)

General:

The PCS v3.3 is only compatible with Lupine Halogen lighting systems. It is fitted as standard to the following Lupine lighting systems:

Passubio XC
Passubio XL
NightMare Pro
X-Beam R 15/16

Out of the box the PCS v3.3 is set to the standard factory settings. There is no need to program the switch as the factory settings allow full use of the lighting system; however some individuals have their own requirements which can easily be programmed by reading this manual. Please do not attempt to program the PCS until you are used to operating the lighting system and you have read and understood this Technical Information.

Mounting:

The PCS v3.3 is designed to be mounted directly next to the lamp on the handlebars. Before attaching the velcro strip to the handlebar, ensure that the surface is free of dirt and oil. The velcro strip should be applied at room temperature, colder temperatures will cause the adhesive not to work. Attach the counterpart velcro to the bottom of the PCS housing. Attach the PCS to the velcro strip on the handle bar and secure it in place with the supplied velcro-strap with rubber ring as shown below:



Using the PCS v3.3:

After connecting the beam to the rechargeable battery, all LEDs will blink once .
The PCS V3.3 then starts initialising its software and the voltage of the rechargeable battery will be indicated. The backlight LED then starts light.

Voltage:

After initialising the software, the voltage will be indicated as follows:

**First, the blue LED will blink 1 time per volt,
then the green LED will blink 1 time per 1/10 volt**

Example: The blue LED blinks 7 times and the green LED 5 times = the voltage measured is 7.5 V. This information will help you to judge the actual condition of your rechargeable battery before use:

Between 7.5 and 8 V : fully charged. Between 7 and 7.5 V : Re-charge battery if it is not an older battery. Between 6.5 und 7 V : Not ready for use.

Hint: You don't have to wait for the whole voltage information to be shown in order to use your lamp. You can stop the voltage information at any time by switching on the beam.

Note: Even if the bulb has blown, the LEDs will flash as above. If the light does not illuminate despite a successful initialisation, the failure is not caused by the PCS but from a blown bulb.

Switching on: Pressing the button on the switch unit turns the lamp on. It will operate on high beam. (signalled by the blue LED on the switch).

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

Switching off: Press and hold the button for 2 seconds until the light switches off. Backlight LED will turn off after some seconds.

Controlling the remaining light time:

The electronics of the PCS v3.3 not only control the high and low beam but also protect the rechargeable battery against over discharge and includes a low battery indicator.

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

When the yellow LED lights: Significant amount of capacity is gone!
Red **and** yellow LEDs light or blink: 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 .

When the yellow **and** red LEDs light up and the lamp also light up the light automatically switches to low beam. There is only a few minutes burn time left.

Note: As soon as both the red and yellow LEDs light up, the light will automatically dimmed to 9 Watts (Nightmare and Passubio XL series), 6 Watts (Passubio XC) .

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 it activates the reserve tank which provides some additional minutes of emergency light on very low beam .
A flashing red LED signals the reserve tank has been activated. Its duration also depends on the battery condition.

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

Caution! Switching on is not possible at this point. If you unplug the battery and then re-attach it, you will damage the battery by over discharging it! Also, storing a discharged battery will cause over discharging. Recharge the 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 and: Light flashes	Rechargeable battery almost empty Caution! Light will switch off very soon without further notice – Stop!
Red LED flashes:	Reserve tank activated

PROGRAMMING THE PCS V3.3

The Power Control System v3.3 offers several settings to fine tune the lighting system to individual needs. Out of the box, the factory settings are based on Lupine's years of experience in producing lighting systems and are designed to provide optimum performance. These factory default settings are marked with a grey background in the "Programming chart".

It is possible to set the following features and functions:

- Flashing SOS or Alpine Emergency
- Setting the low beam
- Setting the capacity control (remaining burn time)
- Setting the power setting (economy, normal or power modus)

1.) SOS Function

Press and hold the button on the PCS v3.3 for 5 seconds until the green LED starts flashing. Release the button and the lamp will flash continuously the SOS signal ("...---...") until the button is pressed again.

Warning!!: The SOS signal is an international emergency signal! It should only be used in a real emergency! Due to the high power of the lighting system the signal can be seen from a considerable distance. It will flash continuously until the capacity of the battery runs out!

Only use this signal if emergency help is required. Misuse could result in a fine or prosecution.

2.) Low Beam

Factory default is two step dimming: maximum power (blue LED lit) and 20% of maximum power (low beam). However it is possible to change these defaults to your individual needs:

On/Off:

It might be useful in some circumstances to fore go the low beam mode. In the on/off mode you can only switch between high beam and switched off.

Two step dimming:

The standard high/ low beam mode.

High beam is always 100 % power. However it is possible to choose between 20%, 40%, 60% or 75% of the maximum brightness for the low beam.

The equivalent wattage of the dimmed beams is shown below (power setting based)

	<u>16W bulb</u>	<u>25 W bulb</u>
20% dimmed	4 W	5 W
40% dimmed	7 W	10 W
60% dimmed	10 W	14 W
75% dimmed	13 W	20 W

Three step dimming:

If one low beam is not sufficient, it is possible to program a third beam between the high and low settings. In this mode the power of the beams is fixed:

Maximum = 100%, middle = 60%, low = 30%

Continuous Dimming:

This mode makes it possible to set the light's power to any value between 100% and 10%. Starting with maximum power, each press of the button reduces the brightness until it reaches 10%. After the 10% setting, the brightness increases to 100% again.

Note! You can also dim the light by pressing and holding down the button until the brightness reaches the desired level. However, pressing the button for too long **will switch the light off!**

3.) Capacity control

The PCS v3.3 monitors the capacity of the rechargeable battery by measuring the voltage. Unfortunately voltage and capacity are not exactly proportional which is why Lupine does not quote an exact remaining capacity when the yellow and red LEDs light up. It takes some experience of using the lighting system to tell exactly how much burn time is left when the yellow LED lights up. Accordingly, it also varies how much burn time is left when the red LED lights up. The factory default capacity control will be suitable for a long time. It is not recommended to change the capacity control until you have experienced a remarkable loss of burn time.

"High"

This is the default for Li-Ion rechargeable batteries. The yellow and red LEDs will light up with a large amount of burn time remaining due to the behaviour of this battery type. If used with an extension cord or used in very cold temperatures, it should be more accurate to set the capacity control to "middle".

"Middle"

This is the default for Ni-MH rechargeable batteries. It is also suitable for Li-Ion batteries. The yellow and red LEDs light up with less capacity left compared to "high". The reserve tank is also activated later than "high".

"Low"

This capacity control should be used for older Ni-MH rechargeable batteries. The yellow and red LEDs and the reserve tank are activated with very little capacity left. This benefits old batteries with sufficient capacity but with weaker voltage.

Threshold voltage:

LED	Low	Middle	High
Yellow	6.3V	6.7V	7.2V
Red	5.8V	6.1V	6.5V
Reserve	5.5V	5.7V	6.0V
Off	5.4V	5.4V	5.4V

4.) Bulb voltage

Economy mode

If you prefer to maximise the life span of the bulb it is possible to reduce the voltage to 5.8 V. This will increase the life span of the bulb but will reduce the brightness of the beam.

The economy mode is not signalled when the lamp is switched on.

Life-span of the bulb will be increased for est. 100 %. Color temperature decrease and light becomes more yellow. This is normal. Power consumption is lowered for est. 20%.

(25 W bulb : 20 W power consumption)

All dimm levels are also reduced proportional . The 20% setting in 2 step setting is lowered to less than 3 W with the 16 W bulb (XC) It will be recommend to choose the 40% setting.

Normal mode

This is the good compromise between performance and life span of the bulb. Voltage will be reduced to 6.0 V. This will increase the life span of the bulb but will reduce the brightness of the beam a little bit. All dimm levels are also reduced proportional .

The normal mode is not signalled when the lamp is switched on.

Life-span of the bulb will be increased for est. 60 %

This setting is factory default on Passubio XL . Normal mode reduce power consumption to 22 W .

Power mode

Factory default setting is 6.5 V. This voltage setting maximises the performance of the Lupine halogen bulbs.

The power mode is also not signalled when the lamp is switched on.

5.) The Programming Chart:

Programming the PCS v3.3 is easy and is performed with the battery connected to the lamp. Please read the chart fully before programming as it may take a few attempts to fully understand the chart.

The programming is performed on 2 levels, each requiring a press of the button to activate.

The **first level** is highlighted in left column. By pressing and holding down the button you can set:

- SOS-Function
- Dimming
- Capacity control
- Bulb Voltage

This first level is passed through by **keeping the button pressed**. Every 5 seconds a different LED (or combination of LEDs) lights up signal which setting has been selected. .

When the LED signals that you reached the desired setting (SOS, dimming, capacity control etc.), release the button and this will activate the **second level** of the programming. From this point it is possible to choose **how** the desired setting will function (selected mode):

Dimming:

- On/Off
- 2-step
- 3-step
- Continuous

Capacity control:

- High
- Middle
- Low

Bulb voltage:

- economy mode
- normal mode
- power mode

Emergency signal :

- SOS
- Alpine emergency signal

The PCS v3.3 passes through the options of the second level **automatically**, signalling each option with a different LED (or combination of LEDs). Do not press the button until the PCS has reached the exact setting you desire. When the LEDs signal the desired mode, press the button and the set up is complete...

Unless you have chosen 2-step dimming and wish to set the brightness level of the low beam. This is controlled by a **third level!** This level can only be reached if 2-step dimming has been selected at level 2. From here you can choose the brightness level of the low beam:

The PCS v3.3 will pass through the dimming level options (20% -- 40% -- 60% -- 75%). When the LEDs signal the desired setting, press and release the button to set the brightness level.

The third level is highlighted on the programming chart by a vertical arrow pointing down. This level is **only** activated when the 2-step dimming has been chosen at level 2.

Note for beginners:

- 1) Be cool! Take your time to fully understand each mode and how the programming chart works.
- 2) Carefully read this manual and the programming chart.
- 3) Make up your mind about **what** you want to set, **how** to get there, **which** LEDs signal the desired mode, **when to press** the button and **when to release** it.
- 4) If you make an error and select the incorrect mode, try again until you have correctly set up the desired mode. Practice makes perfect!

IMPORTANT NOTES:

Use of this lighting system might be restricted in several ways depending on the country you live in and depending on the purpose of lamp use. Please inform yourself about restrictions in your country.

The mounting device and the design of the PCS are protected by worldwide patents.

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