LUPINE
LIGHTING SYSTEMS

www.lupine.de

Wilma Head Unit
Wilma 5/7/10
Wilma X/X Pro

OWNERS MANUAL

Wilma

General:

The light and charger are ready for use when delivered. All you have to do is charge the battery before using the product. ➔ See charger manual

Safety advisories:

Safety advisory: Avoid looking directly into the light emitted by the light or shining the light into your own eyes or the eyes of another person. If the light accidentally shines into your eyes, close your eyes and move your head out of the light beam path. Do not use any strongly focussing optical device to look at the light beam.

In cases where the light is used in a public or commercial setting, users should be provided with training concerning the safety measures for laser light.

Carry a spare light with you at all times, as the product can potentially fail unexpectedly at any time.

Heat generation:

The light housing can heat up, despite the product's passing resemblance to a flashlight. So make sure that you always keep the light at a safe distance from any combustible or flammable materials. However, quiescent operation (without cooling the light housing via airflow or the like) can be carried out at any time and will not damage the product.

Important: When the light is used in a stationary state, the light dims after a few minutes to reduce the light's temperature. The light can only be used at 17 watts for long periods if air is flowing over the housing.

Water resistance:

All Wilma components are waterproof, which means that the product can be used under extremely severe conditions. However, the Wilma light is NOT a diving lamp and is NOT suitable for use under water.

Uni Fit bracket:

Mounting the light on bicycle handlebars and similarly shaped objects, or on Lupine bicycle helmet brackets or headbands, is quick and easy thanks to the flexible rubber O-ring.

For a demonstration of how to mount the light on handlebars, see the video on our Website (click "Support").

Use the included larger O-ring for oversized handlebars.

Note: The product is supplied with the O-ring for standard handlebars installed on the bracket. To attach the light to oversized handlebars, unscrew the bracket and replace the O-ring with the larger one.

Lateral adjustment:

To adjust the light for freeride or downhill handlebars, you can rotate the bracket on the lamp housing 4 degrees to either side. To do this, loosen the screw on the bracket.

Helmet bracket:

The Lupine helmet bracket can be attached to virtually any helmet that has ventilation slits. The bracket is easy to mount. For further information, see the text and pictures on the pages that follow.

Helpful hints: Normally the two straps are too long. However, only shorten them after mounting and removing the bracket once, because once you've snipped off the extra length, you can't put it back on again.

1

Pull both straps through the best situated ventilation slits. Try out various options until you find the optimal position. ***Helpful hints:*** Since virtually all ventilation slits are raked forward, its best to mount the bracket as far as possible under the edge of the helmet, to prevent the bracket from slipping. In doing this, thread the two straps through the slits as shown in the picture. When the straps are new they are stiff and therefore somewhat difficult to pull through the slits, which is normal. However, with use the straps will soften and become easier to use.

Make the straps as tight as possible by pulling hard on them, and in such a way that the bracket is centered. After pressing the two velcro elements (upper and lower strap) together, tuck the trailing ends of the velcro under your helmet to avoid unsightly "ears." Grasp the bracket and move it back and forth with moderate force, to make sure that it is firmly in place.

2

3

Mount the light on a helmet bracket using the same procedure as for handlebars. The Unifit bracket O-ring holds the lamp in place on the helmet bracket.

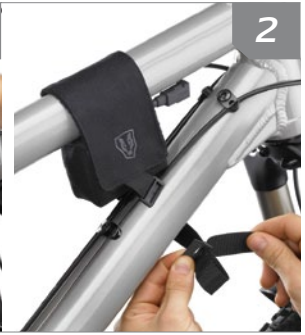
For a demonstration of how to mount the light on a helmet, see the video on our Website (click "Support").

Headlight:

Mount the light on a headband using the same procedure as for handlebars. The Unifit bracket O-ring holds the lamp in place on the headband.

Frame battery:

Wrap the velcro tightly around the upper bar. Adjust the length of the tether strap before closing.



For a demonstration of how to mount the battery on a bicycle frame, see the video on our Website (click "Support").

Bottle battery:

Adjust the wire length by loosening the nut on the bottle.

Initialization; voltage display:

When you connect the light to the battery, the software runs a self-test, during which all four status LEDs come on briefly.
The battery voltage is then shown via the blue and green LEDs, as follows:

➔ The blue LED blinks once for each volt; and then
➔ the green LED blinks once for each 1/10 of a volt.

To see the battery voltage again, unplug the light from the battery and then plug it in again.

For example, if the blue LED blinks seven times and the green LED then blinks five times, this means that the measured voltage under load is 7.5 V. This display helps you to assess the actual level of the battery prior to use.

Guidelines in this regard:
More than 7.9 V: the battery is fully charged. 7.1 to 7.8 V: the battery needs charging or is old. 6.5 to 7 V: the battery is not ready for use.

Note: To deactivate this display, simply press the button. In other words, you needn't let the display go through its whole cycle in order to use the lamp.

The Power Control System (PCS) measures the voltage under load. Thus measurements using a voltmeter will not be comparable.

Initialization

Battery voltage

The battery level display can also be seen in the video on our Website (click "Support").

Switching on the light:

The first press of the button switches on the light with maximum power. If the light is outputting maximum power, the blue and green LEDs will be illuminated.

High beam setting

Toggling between low and high beam:

To toggle between low and high beam, press the button briefly. When the light is on low beam, only the green LED is illuminated.

Note: The light outputs the maximum amount of light only if airflow lowers the temperature of the light sufficiently. If the light is not cooled by airflow, its power is reduced incrementally to prevent the LEDs and electronic elements from overheating.

Low beam setting

Switching the lamp off:

To switch off the lamp, hold the button down for more than two seconds.

SOS function:

To activate the SOS function, hold the button down for three seconds and then release it. If you don't press the button again, the lamp will continue to emit the international SOS signal until the battery is completely discharged. To deactivate the SOS function, press the button again. You can then use the lamp in a normal fashion.

Note: Use the SOS signal ONLY in an emergency. Thanks to the light's high luminance, the signal is visible for miles around and will continue flashing for hours if not shut off. Improper use of the SOS signal is punishable by law.

Discharged battery capacity:

When you shut off the lamp, the discharged battery capacity is shown via flashing of the blue LED and then the green LED. This information can only be displayed once as it is deleted when you unplug the battery.

The ➔ blue LED blinks once for each Ah (ampere hour); and then
the ➔ green LED blinks once for each 1/10 of an Ah.

For example, if the blue LED blinks four times and then the green LED blinks six times, this means that 4.6 Ah were discharged from the battery.

Discharged capacity

Battery warning signal:

The battery level is shown via the yellow and red LEDs. If the battery voltage falls below a certain level, the yellow LED turns on (the light also flashes once). The red LED flashes just before the battery is completely discharged.

⚠ ***Safety advisory:*** When the battery is completely discharged, the yellow and red LEDs flash in alternation for a few minutes and the light will shut down after flashing a few times. In such a case, you should ***stop riding your bicycle immediately***.

Low capacity remaining
(level 1)

Very low capacity remaining
(level 2)

Stop immediately.

Note: The battery time remaining after the yellow or red LED flashes depends on total battery capacity, the ambient temperature, the battery's age, and whether you use the low, middle or high setting. Moreover, since the voltage curve of a Li-Ion battery is not proportional to the power left in the battery, you need to learn how to interpret the relevant displays for your specific battery.

Reserve power:

When the battery is completely discharged, the yellow and red LEDs flash in alternation for a few minutes and the light shuts down after flashing a few times. To activate the battery's reserve power, double-click the switch. This will give you a few minutes more light, whose exact amount depends on the age of your battery. The light emitted in reserve-power mode is less than 6 W so as to conserve power and keep the light going as long as possible. The red LED flashes when reserve-power mode is activated. When the reserve power has been completely discharged, the light will shut down – which means that you need to ride slower.

Note: If only 1 W is used, reserve power is not available.

⚠ ***Safety advisory:*** Do not switch on the light when the battery is discharged, as this will invariably damage the battery. Recharge the battery as soon as possible to avoid a deep discharged battery.

Reserve power

Explanation of LEDs:

	Blue LED on:	high beam on (maximum output)
	Green LED on:	lamp on (low beam)
	Yellow LED on:	battery low, which means you need to conserve power.
	Red LED on:	battery extremely low; your Wilma light will shut down in a few minutes.
	Yellow and red LED flash in alternation/ the Wilma light flashes:	battery is almost empty; stop immediately.
	Red LED flashing:	reserve power activated

Note:

The Wilma light's Power Control System (PCS) offers various individual-programming options. The PCS's default settings are defined in such a way that normally you need make no changes in them. These settings are shaded gray in the programming flowchart.
The PCS allows for the following programming options, which are described below:

- ➔ Two and three level mode for the low beam
- ➔ Changing the battery warning signals
- ➔ Selecting maximum output
- ➔ Selecting an international SOS emergency signal, Alpine or superflash emergency signal

Low beam/dimming:

The default setting for the PCS is for two-level dimming. On the low beam default setting, the light emits 10 % of its maximum output. This function allows you to adjust the Lupine light to your exact needs.

Three-level dimming with superflash:
This mode can be useful in certain situations. In addition to the low beam (35 % of maximum power) and high beam, this mode features a slow superflash function.

Two-level dimming:
Classic high/low beam.
High beam provides maximum light output. Low beam can be set for 5 %,10 %, 35 % or 55 % of maximum output.

Approximate power consumption of the light:

5 %	dimming level	1	W	100	lumen
10 %	dimming level	2	W	210	lumen
35 %	dimming level	5	W	440	lumen
55 %	dimming level	9	W	650	lumen
100 %		17	W	1100	lumen

Default setting

Three-level dimming:
This mode provides you with a third option in addition to the normal low and high beam in cases where the low beam does not provide sufficient light. As with two-level dimming, the lower and middle dimming levels can be individually adjusted, as follows: 5 %, 10 %, 35 % or 55 %.

Stepless dimming:
In this mode, you can adjust the light intensity steplessly from 5 % to 100 % of maximum output. To do this, starting at 5 % press the button until you find the desired light intensity (up to 100 %). The blue LED comes on when the light is shining at maximum capacity. To lower the intensity, press the button.

Note: To avoid accidentally switching off the light while adjusting the light intensity (which can happen for design related reasons), press the button very quickly. In other words, avoid holding the button down for too long, because after two seconds the PCS will shut down the light completely.

Battery warning signals:

As mentioned above, the Power Control System (PCS) monitors battery capacity via a voltage correlation. Inasmuch as battery voltage and capacity are not proportional to each other, you cannot tell at first glance from the yellow or red LED exactly how much power is left in the battery. However, as you get to know your Wilma light, you will be able to determine whether, for example, the yellow LED indicates that 25 % or 50 % of battery capacity remains. The same holds true for the red LED.

Note: To find the optimal display mode for your needs using a specific type of battery or for extreme conditions, it is essential to try out the various modes under real conditions, since the battery's age as well as the ambient temperature have an effect on the display. Thus for example if the Middle display mode does not work satisfactorily, see how the PCS reacts when you switch to High or Low mode.

"High" mode
The yellow and red LEDs, as well as the reserve power function, are activated at a very early stage.

"Middle" mode
This mode – the default display program for Li-Ion batteries – normally shows capacity optimally for this type of battery.

"Low" mode
This mode is particularly suitable for older batteries since the yellow/red LEDs and the power reserve will be activated at a much later stage. The advantage of this mode is that an older battery with lower voltage but adequate capacity will perform satisfactorily.

Power management:

This mode allows you to adjust the light's maximum output.

Power mode **Wilma 17 W**
This is the default Power Control System (PCS) setting. The Wilma light outputs the maximum amount of light only when airflow lowers the temperature of the light sufficiently. If the light is not cooled, its power is reduced incrementally to prevent the LEDs and electronic elements from overheating.

Normal mode **Wilma 14 W**
Light output is slightly reduced and battery life increases accordingly. The temperature control function is of course also activated in this mode.

Economy mode **Wilma 12 W**
Use this mode when you need the Wilma light to be illuminated over an unusually long period. However, in this mode the LED performance is below par. The temperature control function remains activ in this mode.

Note: All dimming levels indicated in these instructions are based on the maximum output for the mode that has been set. Thus for example in Economy mode, the dimming levels are somewhat lower, i.e. 5 % of 17 W is somewhat higher than 5 % of 14 W.

SOS function:

The SOS function offers three different emergency signals, whereby the default setting is the international SOS signal.

- ➔ International SOS emergency signal
- ➔ Alpine emergency signal
- ➔ Superflash function

Note: Use the SOS signal ONLY in an emergency. Thanks to the light's high luminance, the signal is visible for miles around and will continue flashing for hours if not shut off. Improper use of the SOS signal is punishable by law.

Tips for inexperienced programmers:

1. Keep calm
2. Read this section and the programming table
3. Determine ahead of time which steps you need to take to reach your goal. Whether these steps are correct is indicated by the order in which the various LEDs are illuminated. It is advisable to note down this order ahead of time so that everything goes according to plan.

Helpful hint: To familiarize yourself with the programming procedure, it's best to start with stepless dimming and then move on to two-phase dimming. The three-phase dimming program is for advanced users only.

The Support section of our Website contains a series of videos that show you how to program the PCS.

Note: Always program the PCS with the light plugged into the battery.

Programming flowchart:

At level 1, which shows you the various programming options, select the function you'd like to program:

- Low/high beam
- Battery warning signal
- Power management
- SOS function

Level 1 runs from left to right if the button is held down continuously, and the LEDs come on in alternation at four second intervals or so.

When the desired LED color and the attendant option is reached, release the button, which takes you to level 2.
Here, you define the performance characteristics for the selected option.

Low beam/dimming:
- three-level superflash
- two-level
- three-level
- stepless

Power management:
- Economy
- Normal
- Power

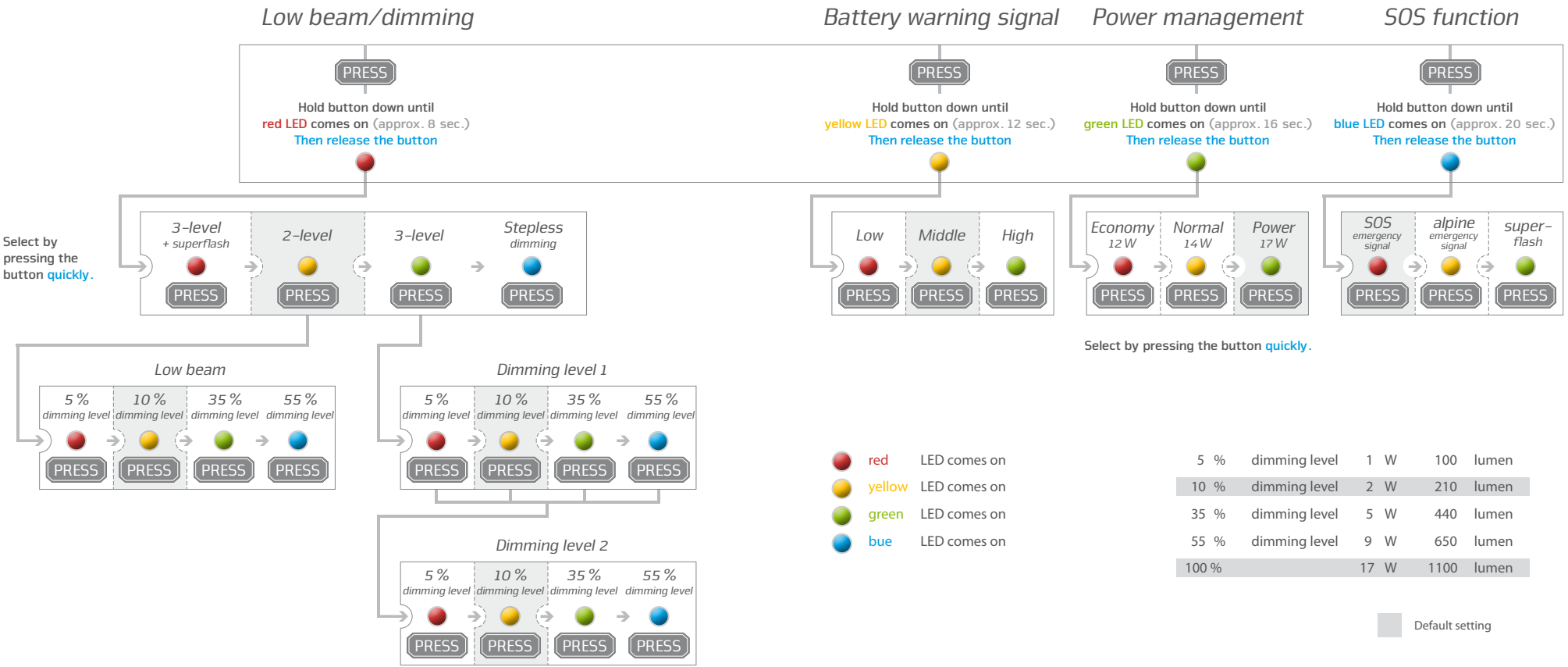
Battery warning signal:
- Low
- Middle
- High

SOS function:
- Int. SOS emergency signal
- Alpine emergency signal
- Superflash

Default setting

Going through the options at this level makes the PCS run automatically, a state that is signaled by a continuously illuminated LED in a specific color.
In other words, release the button, simply wait until the LED in the desired color comes on, and THEN press the button again to confirm your selection and exit automatic programming mode.
And that's it for level 2.

Now proceed to level 3 – but of course only if you wish to activate two or three level dimming (low beam) and have pressed the button for the relevant LED in level 2. Level 3 only enables you to define dimming intensity. The PCS programming options at this level likewise run automatically. After the button has been released again, the LEDs (which now flash) allow you to select the desired dimming level, i.e. 5 %, 10 %, 35 % or 55 %. To do this, again press the button when the LED showing the desired percentage is displayed. And now you're done.



red	LED comes on	
yellow	LED comes on	
green	LED comes on	
bue	LED comes on	

5 %	dimming level	1 W	100	lumen
10 %	dimming level	2 W	210	lumen
35 %	dimming level	5 W	440	lumen
55 %	dimming level	9 W	650	lumen
100 %		17 W	1100	lumen

Default setting

Plug contacts:

Normally the plug contacts are maintenance free. However, if you use your Wilma light in humid, salt-air, environments, it's advisable to apply a thin layer of Lupine Dutch Grease to the contacts every so often to prevent oxidation. Do NOT use terminal grease or contact spray.

Transport:

Important: Always keep the battery separate from the Wilma light, because otherwise the small amount of power used by the electronics will discharge the battery, and the lamp may switch on accidently. ***Important!*** Moreover, the consequent uncontrolled heat buildup could cause a fire or melt the adjacent plastic material. Could cause fire or death!

Storage:

During lengthy periods of non-use, fully charge the battery and store it in a cool, dry place, basement or the like. The battery can be kept plugged into the charger if desired. For further information concerning battery care and the battery's professional 50 % LI storage function, consult the charger manual.

Opening the light housing:

Open the light housing's front screw-on cover. Grasp the rear section of the lamp with one hand while rotating the front section of the cover to the left (counterclockwise) with the other hand. Once you have removed the cover, you will see the 4-array lens. Do not touch it.

Closing the lamp housing:

Check to ensure that the O-ring on the rear section of the housing is correctly positioned.
The housing will only be waterproof if its O-ring is intact. After completing this inspection, carefully screw down the housing cover. ***Important note:*** if the thread runs smooth, the cap is in the right position. Otherwise please stop and screw back the cover and try again, otherwise you might damage the thread.

Problem	Cause	Solution
The light does not come on and the power LEDs do not flash when the battery is plugged into the lamp.	➔ Extremely discharged battery. ➔ Battery not plugged into the light or not plugged in properly.	➔ Charge the battery. Before doing so be SURE to read the "Battery cannot be charged" section below. ➔ Check all plug contacts, including those under the bottle battery cover.
With the battery plugged in, the power LEDs do not come on, but the PCS LEDs flash.	➔ Faulty LED unit.	➔ Replace the LED unit.
The Power LEDs do not stay on for as long as they should.	➔ Discharged battery. ➔ Old battery. ➔ Very low ambient temperature. ➔ Faulty charger. ➔ Unsuitable battery.	➔ Charge battery. ➔ Replace battery. ➔ Keep battery warm. ➔ Replace charger. ➔ Use original Lupine battery.
Battery cannot be charged: Charger One does not respond when a battery is connected to it and does not begin charging, i.e. the display only shows "Ready for charge."	➔ The battery's internal electronics blocked further discharge by shutting down. It will take the connected Charger One a few minutes to initialize and begin charging.	➔ Leave the battery connected to the charger and wait. This process can take up to an hour.

Weight:

Wilma lamp:	112 g
Wilma 5 with battery:	355 g
Wilma 7 with battery:	455 g
Wilma 10 with battery:	610 g
Wilma X with battery:	350 g
Wilma X Pro with battery:	440 g

Light output:

Battery life:

	Wilma 5/X:	Wilma 7/X Pro:	Wilma 10:
17 W 100 %: 1100 lumen	3 hours	4 hours	5 hours 30 min.
9 W 55 %: 650 lumen	5 hours 30 min.	7 hours	10 hours
5 W 35 %: 440 lumen	10 hours	13 hours 30 min.	19 hours
2 W 10 %: 210 lumen	22 hours	33 hours	44 hours
1 W 5 %: 100 lumen	44 hours	66 hours	88 hours

Battery life varies according to battery age and condition, as well as ambient temperature.

Default setting

Charging time:

Wilma 5:	4 hours
Wilma 7:	5 hours
Wilma 10:	7 hours
Wilma X:	4 hours
Wilma X Pro:	5 hours

Battery capacity; nominal voltage:

Wilma 5:	5	Ah	7.2 V Li-Ion
Wilma 7:	7.5	Ah	7.2 V Li-Ion
Wilma 10:	10	Ah	7.2 V Li-Ion
Wilma X:	5	Ah	7.2 V Li-Ion
Wilma X Pro:	7.5	Ah	7.2 V Li-Ion

Lens beam angle:

15 °

Operating temperature:

-25 °C – +70 °C

The laws governing the allowable application domain for this lighting system may vary from one country to another. We recommend that you inform yourself about the relevant laws in this domain in your country.

The O-ring mounting technique, as well as the design of Wilma lamps and the Power Control System (PCS) are protected by European and US patents.

Warranty:

The product's two year warranty applies to all components, as well as any manufacturing defect. The warranty does not include the battery, however. In addition, any modification or improper use of the product will void the warranty.

Purchase date/Dealer stamp

www.lupine.de

Lupine Lighting Systems GmbH
Winnberger Weg 11
92318 Neumarkt
Germany

Phone: +49 (0)91 81 - 50 94 90
Fax: +49 (0)91 81 - 50 94 915
E-mail: info@lupine.de