

KL4MS/KL5MS/KL8MS/KL12MS

Miner's Cap Lamp With Cable

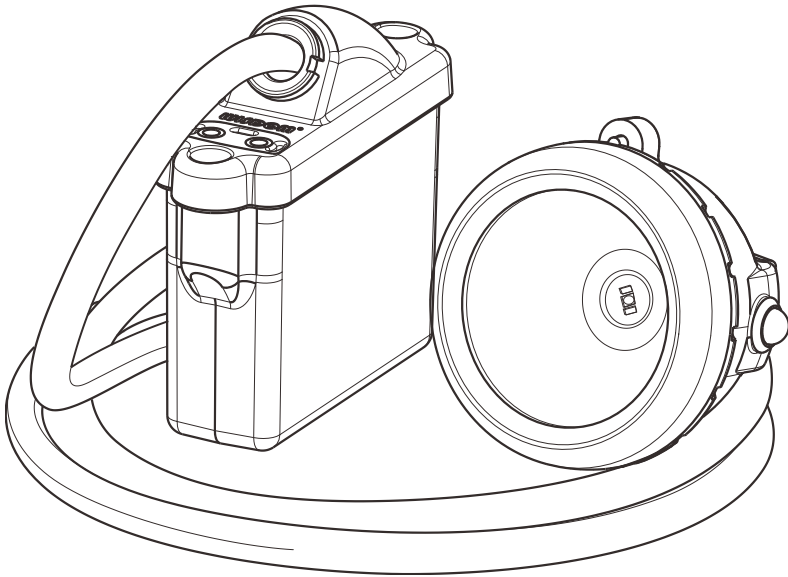


English

中文

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English

1 Features

Wisdom creatively designed S series Li-ion miner cap lamp KL4MS、KL5MS、KL8MS 、KL12MS is a kind of portable lighting equipment, which applies the technologies of the latest CREE LED lighting source and large capacity Li-ion battery. The innovative design enables it to withstand the harshest underground conditions, like coal- mines, metal mines, etc. The significant features are as follows:

1.1 Stable and super bright

S series miner cap lamp main light applies the world advanced LED light source and advanced driver circuit making the miner lamp maintain a stable high brightness. There are three versions for your option: the standard version (working time is more than 13H), the longtime version (working time is more than 16H), the super long version (working time is more than 24H). Throughout the whole working process of the cap lamp, it can always keep the same high brightness. Since the delicately designed reflector and ultra-clear glass help reduce the light absorption greatly improve the brightness.

1.2 Small, light and portable

The corded lamp head lamp globe is very small as the LED light source is much smaller in size and produces less heat which requires a smaller radiator. In spite of small size, our radiator is of high efficiency for its good design. Moreover, the Li-ion battery is only 1/3 the weight of the traditional lead acid battery, which makes these corded lamps smaller, lighter, more portable.

1.3 Safe, reliable and maintenance-free

The Li-ion battery is maintenance-free. Moreover, the battery pack PCB can protect the battery from over charge, over discharge, over current, and short circuit so that the battery won't explode or burn. Therefore, the safety and reliability of KL4MS, KL5MS and KL8MS are highly well guaranteed.

1.4 Two charging ways

For the S series cap lamps, we designed and produced magnetic USB charging wire, which makes it possible to charge the LED cap lamps with the charging supply of the general mobile phones. Moreover, they are compatible with the matched single chargers and charging racks. It is a revolutionary breakthrough for the charging usability of cap lamps.

1.5 Advanced technology of preventing isolation circuit in the charging contacts

In view of the compatibility of traditional and USB charging way. In order to make sure that there is no voltage difference and there is no current when they touch each other among the three charging contacts, we design the preventing isolation circuit, which ensure the safety and reliability during use of the miner cap lamps.

1.6 Explosion- proof and super impact-resistance

The housing is made of bulletproof PC of German Bayer brand. The optimized mold design not only strengthens the hardness of the housing but also lessens the internal stress, which makes the corded lamps stronger in impacting resistance and more durable in life span.

1.7 Super waterproof

The corded cap lamps are super waterproof which makes it pass the IP68 approval. Since it is with well-designed with waterproof head lamp globe, battery box, button switch and stainless steel metal parts, which enable it to work normally under harsh working conditions.

1.8 Environmentally-friendly

The corded cap lamps are designed in accordance with RoHS, which is strictly followed during the whole process, from material selection to production craft design.

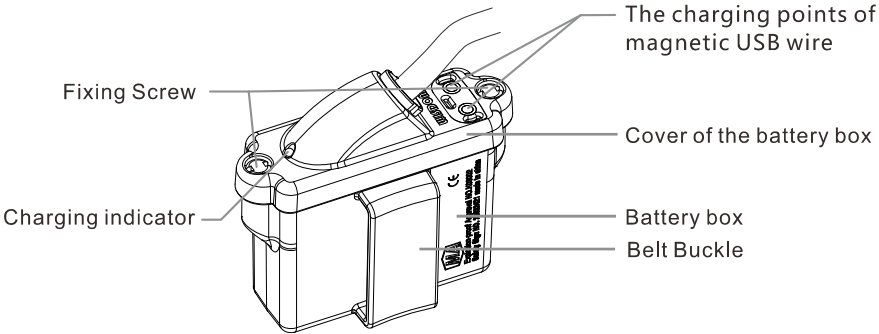
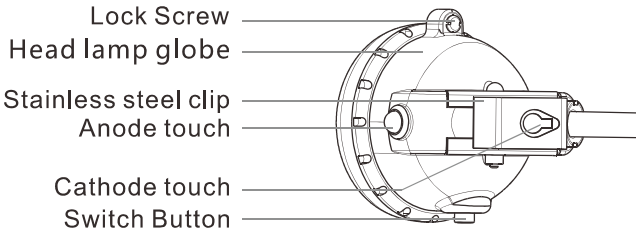
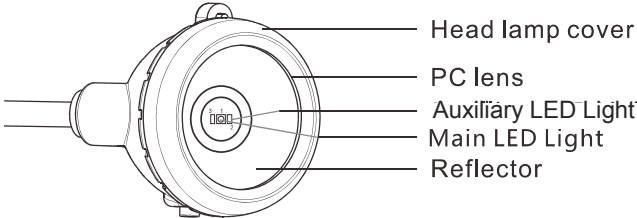
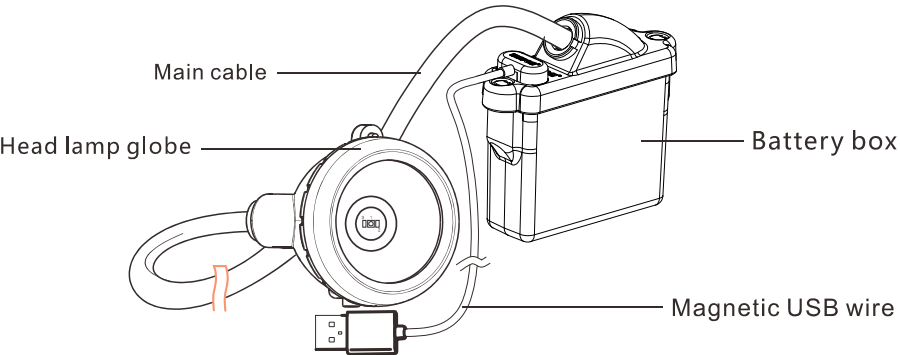
1.9 Longer life span

The corded cap lamps can work more than 13 hours after fully charged. Its main light source has a life span of more than 100000h. Li-ion battery can be charged more than 1200 cycles if the lamp works in reasonable conditions. Therefore, there is no need to replace the light source and battery during its whole life span.

2 NEW WISDOM Cap Lamp Technical Specifications

Features		KL4MS	KL5MS	KL8MS	KL12MS
Rated capacity		4.4Ah	6.6Ah	8.8Ah	12.4Ah
Rated voltage		3.7V			
Main light LED Working voltage		3.0V			
Continuous working time	Super long version	24h			
	long version	16h			
	standard version	13h			
Main light LED Working current	Super long version	230 mA	340 mA	430 mA	580 mA
	long version	340 mA	430 mA	580 mA	800 mA
	standard version	400 mA	580 mA	800 mA	1000mA
Main light Power	Super long version	0.7W	1W	1.3W	1.8W
	long version	1W	1.3W	1.8W	2.4W
	standard version	1.2W	1.8W	2.4W	3W
Main light Luminous flux	Super long version	100 Lm	148 Lm	178 Lm	235 Lm
	long version	148 Lm	178 Lm	235 Lm	301 Lm
	standard version	167 Lm	235 Lm	301 Lm	359Lm
Lamp lighting brightness in one meter (Initial Lighting degree)	Super long version	7000 Lux	10000Lux	11000Lux	16000Lux
	long version	10000Lux	11000Lux	16000Lux	23000Lux
	standard version	11000Lux	16000Lux	23000Lux	25000Lux
Main light life span		100000h			
Auxiliary light Power		0.4W			
Auxiliary light life span		40000h			
Short circuit protect time		<320μS			
Life span of the battery (recharges)		1200 cycles (under reasonable working conditions)			
Charging time with traditional charging rack		4h	6h	8h	/
Charging time with NWB-20		3.5h	4.5h	6.5h	/
Charging time with NWB-25A and fast intelligent charging rack		2.5h	4h	5h	6h
Charging time with USB		3.5h	4.5h	6.5h	8h
Cable length		1.4m or 1.65m			
Dimensions (battery box)		85x94x 36mm	90x94x 36mm	108x94x36mm	108x94x36mm
Weight		460g	500g	550g	550g
Battery reminding		Intelligent three light sources reminding			
Available temperature		0~60°C			
Protection level		IP68			

3 NEW WISDOM Cap Lamp Parts

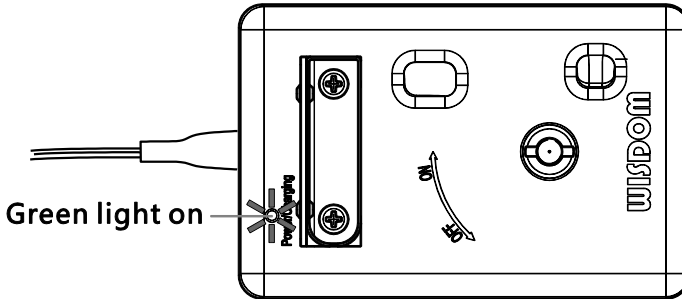


4 User Guide of KL4MS、KL5MS 、KL8MS、KL12MS

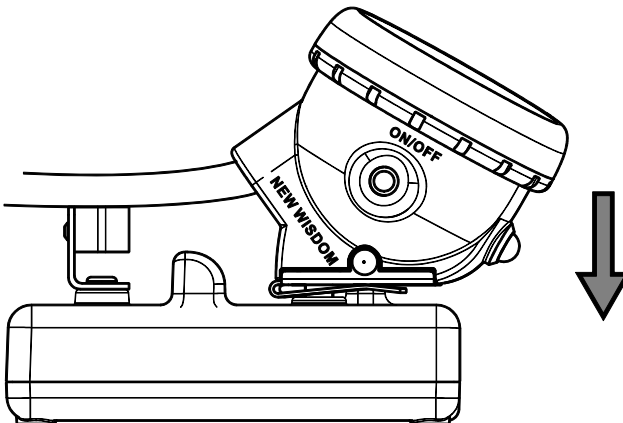
4.1 Charging

4.1.1 Traditional Charging Way

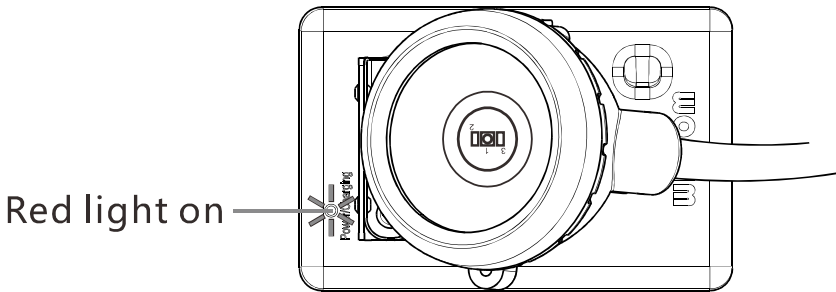
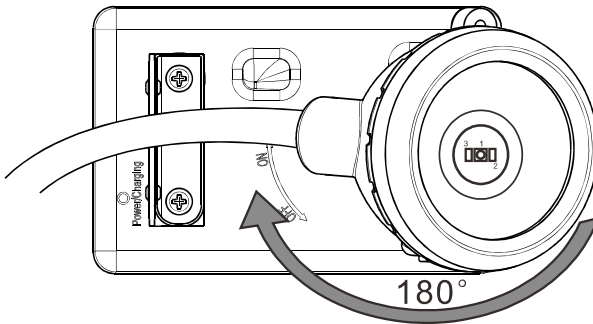
Connect the single charger to the power supply or switch on the charger rack, the indicator light of the charger turns green.



Connect the cap lamp with the charger. Fix the brass pin (cathode) of the charger into the hole of the cap lamp clip.



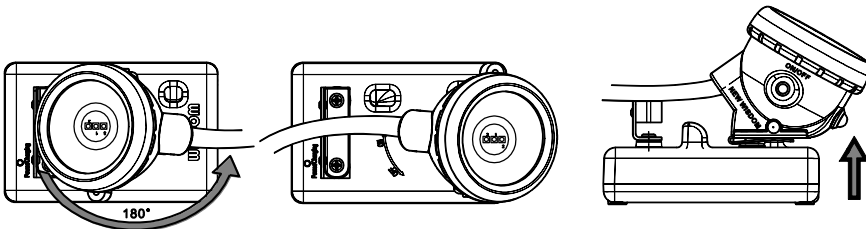
Rotate the head lamp 180 degrees clockwise, make sure the anode touch of the head lamp is closely connected to the connected metal base (anode). Then the indicator light turns red, which means the lamp is being charged.



When it's charged by NWB-25A single portable charger or the intelligent chargers racks, the indicator light of the charger keeps flashing from green to red, it means the battery has been charged at least 90%. The cap lamp can work more than 13h continuously if charging is stopped at this moment. If the indicator light of the charger flashes green only, then the battery has been fully charged.

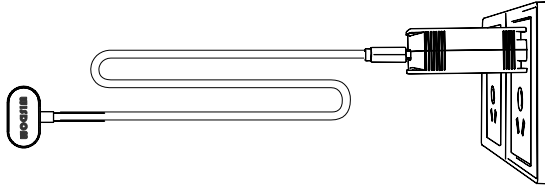
When it's charged by NWB-20 single portable charger or the traditional chargers racks, the battery has been fully charged if the indicator light of the charger turns green.

Rotate the head lamp 180 degrees anti-clockwise; take it away from the charger.



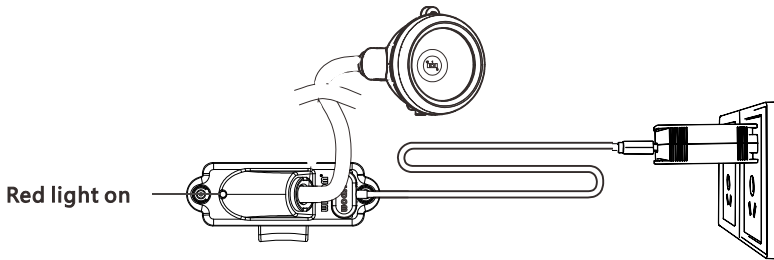
4.1.2 USB Charging Way

Connect the "5V, 2A" power supply with magnetic USB wire to "AC, 100-240V" outlet. The charger indicator turns green.

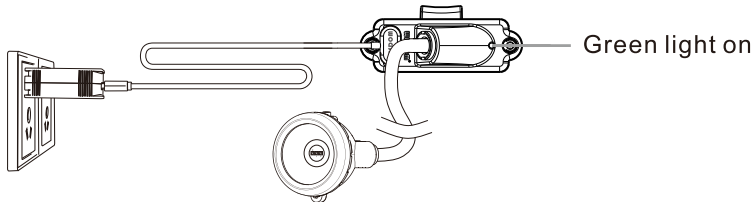


Note: All kinds of USB standard charging interface equipment can be used as a miners cap lamp charger.

Connect the magnetic charging terminal with the USB charging points, make them contact tightly. The cap lamp's indicator turns red, which means it's charging.

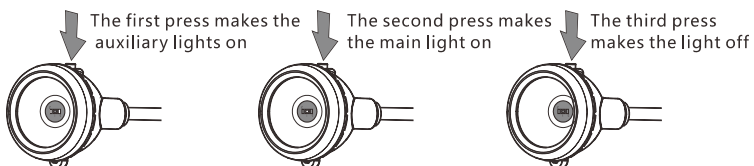


The cap lamp's indicator turns green, which means it finishes charging. Take away the USB wire from the cap lamp, and then use the cap lamp.



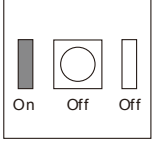
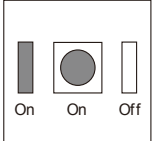
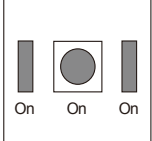
4.2 Switch

The electric switch of KL4MS, KL5MS and KL8MS is waterproof. It works as follows:



4.3 Battery Indication

When the cap lamp is off, press its switch more than 2 seconds. Then the soft light of the main and auxiliary light source will indicate the remaining battery. The indication information is as following:

battery	indicator
battery $\leq 1/3$	 <p>On Off Off</p>
$1/3 < \text{battery} \leq 2/3$	 <p>On On Off</p>
battery $> 2/3$	 <p>On On On</p>

The indication lasts for 6 seconds; the cap lamp restores to be off.

Note: The cap lamp battery indication is just a general one, just for your reference.

4.4 Low battery warning

4.4.1 The normal battery warning:

About 1 hour before the battery power is out, the main LED light of KL4MS /KL5MS /KL8MS /KL12MS flashes softly (one time flashing for every five seconds) to remind the user that the power is nearly used up and needs to be recharged. If you don't want the flashing to affect the normal lighting, you can press the switch more than 2 seconds. The main light source will flash two times, and the flashing is away. Then the cap lamp restores to normal working.

4.4.2 The least battery warning:

When the battery is only able to keep the cap lamp on for 10 minutes, its main light source will flash with the strong and soft light quickly (one time flashing for every two seconds). This information is to remind you that the battery is nearly used up and it needs recharging or exchanging to the auxiliary light source.

5 Trouble and Troubleshooting

Trouble description	Trouble analysis	troubleshooting
Light is not on when pressing the button	Battery power is used up	Charge the lamp
Working time is less than 13 hours	Battery is not fully charged	Making sure the lamp well connected to the charger when charging

6 Notes

- (1) Our cap lamp is half charged before delivery, please fully charge it before using.
- (2) Please use our own matched chargers or magnetic USB wire to charge our cap lamps. Please don't use other chargers which are not specially designed for the Li-ion battery, or the cap lamp may be damaged.
- (3) Please clean the head lamp PC lens timely for the best performance.
- (4) If the lamps need storing for a long period, please repeat the following maintenance steps every two months: full charged→completely discharged→charged for 2 hour.
- (5) Please clean up the dust in the charging point slot timely for the normal charging with the USB line.

7 Safety Warnings

- (1) Please don't shoot at eyes directly while the lamp is working since the strong light will hurt eyes.
- (2) Please don't disassemble the cap lamp, or it may cause potential troubles related to safety, reliability to work underground.
- (3) Please don't crash and strike the lamp.
- (4) Please don't charge the lamp underground.
- (5) Please keep the lamp away from fire sources.
- (6) Please don't maintain the lamp underground. All maintenance must be done on the ground!
- (7) Please don't repair self-disassembly; otherwise the manufacturer will not be responsible for the warranty.
- (8) Please recycle the discarded cap lamp together rather than throwing them away without disposing.

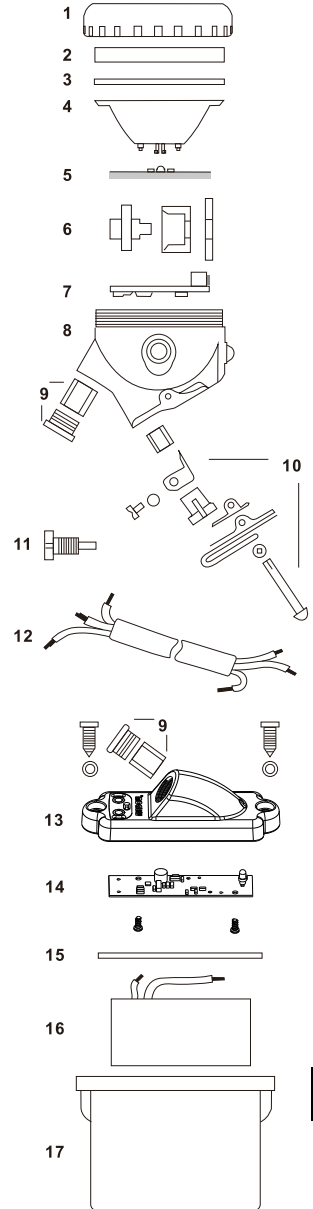
8 Package

- (1) inner box: 1pcs/box/170x 100x 83mm
- (2) outer box: 20pcs/carton/38x22.5x44cm
- (3) N.W.: 12kgs G.W.: 13kgs

9 KL4MS,KL5MS,KL8MS,KL12MS PART DRAWING

**NEW WISDOM KL4MS/KL5MS/KL8MS/KL12MS
LAMP PARTS DRWING**

- 1.head lamp cover**
- 2. PC lens**
- 3.seal ring of the head lamp cover**
- 4.reflector**
- 5.LED Aluminum heat sink**
- 6.button united parts**
- 7.main circuit board**
- 8.head lamp globe**
- 9.nut,seal ring to fix the cable**
- 10.cap lamp clip united parts**
- 11.lock screw of the head lamp cover**
- 12.main cable**
- 13.cover of the battery box**
- 14.the charging circuit board**
- 15.seal ring of the battery box**
- 16. 4.4Ah(KL4MS)/6.6Ah(KL5MS)/8.8Ah(KL8MS)/
12.4Ah(KL12MS) Li-ion battery with PCB**
- 17.battery box**



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10 Product patents and certifications

For more information, please visit our website.



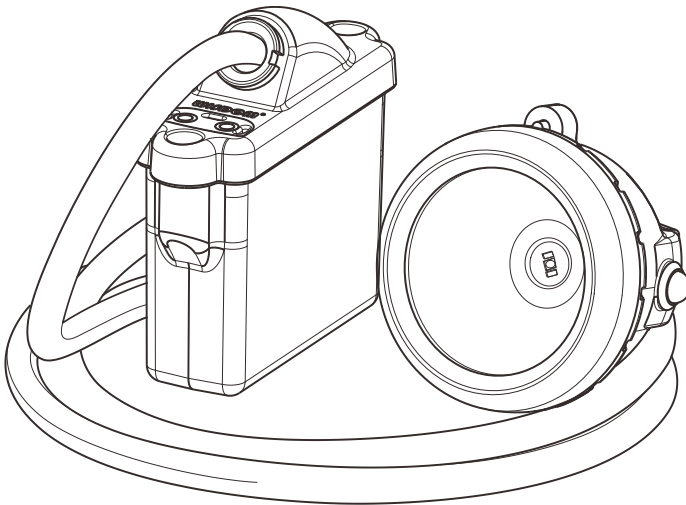
KL4MS/KL5MS/KL8MS/KL12MS CE, ATEX, ROHS certificate



KL4MS/KL5MS/KL8MS pass the IP68 approval

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1 产品特性

WISDOM 创新设计 S 系列锂电池矿灯 KL4MS、KL5MS、KL8MS 、KL12MS 是结合了最先进的 LED 光源技术和大容量锂电池技术 ,以锂离子电池组作为电源的便携式照明设备 ;矿灯独特的设计使其能够在最严酷的地下工作条件如煤矿、金属矿山等环境中正常使用。其显著特性如下 :

1.1 稳定超高亮度

S 系列矿灯的主光源采用了世界最先进的 LED 光源和驱动电路,保持矿灯的稳定超高亮度。S 系列矿灯有 3 种不同的版本选择 :标准版本 (工作时长大于 13 小时)、长工时版本 (工作时长大于 16 小时)、超长工时版 (工作时长大于 24 小时)。在整个工作期间,矿灯都将保持相同的亮度,精心设计的反光杯和超透亮的 PC 镜片都能有效减少光的吸收,以优化和提高光效。

1.2 体积小·重量轻,方便携带

矿灯的光源采用 LED,体积和发热量都远小于灯泡,所以灯头可以做得更小型化。KL4MS、KL5MS、KL8MS 和 KL12MS 矿灯采用锂离子电池,重量只是传统铅酸电池的 1/3。

1.3 安全可靠,免维护

矿灯所采用的锂电池具有免维护的特性。电池组的保护电路具有对过度充电,过度放电,电流过大,短路等问题的多重保护功能,保证电池不会因过充、温度过高、短路、撞击而产生爆炸或燃烧。从而确保矿灯使用的安全。

1.4 两种充电方式

S 系列设计、制造出磁力 USB 充电线,使用通用型手机充电电源就能对 S 系列矿灯充电。此外,还兼容配套的专用充电器或充电架充电,是系列矿灯充电易用性的一个革命性突破。

1.5 充电触点防反隔离电路技术

由于兼容传统充电和 USB 充电两种方式,所以为保证矿灯外露的三个冲断触点间没有电压差,互相触碰没有电流,设计了隔离防反电路,保证矿灯在使用过程中的安全可靠。

1.6 防爆和超级耐冲击

矿灯的壳体使用防弹级 PC 材料制成。优化设计的模型不仅保证了壳体的强度并且减小了内应力，这使得矿灯拥有更强的耐冲击力和更经久耐用。

1.7 超强的防水功效

矿灯达到 IP68 的防护等级,采用了严谨的防水设计,金属部件如帽钩等都采用了不锈钢材料以保证矿灯卓越的防水能力使其能够在苛刻的环境下稳定工作。

1.8 环保

矿灯的设计完全遵守《危害性物质限制指令》(RoHS)。危害性物质限制指令的执行贯穿于整个生产流程，从原材料的挑选到制造工艺的设计都严格遵照该指令。

1.9 更长的使用寿命

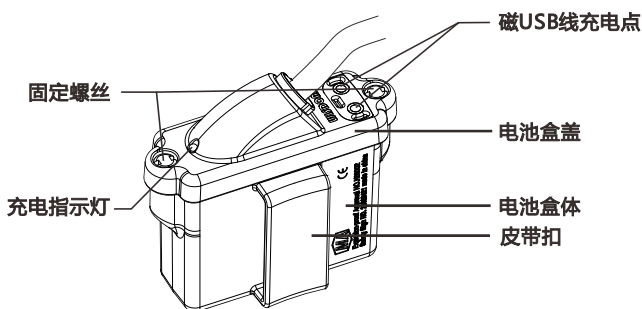
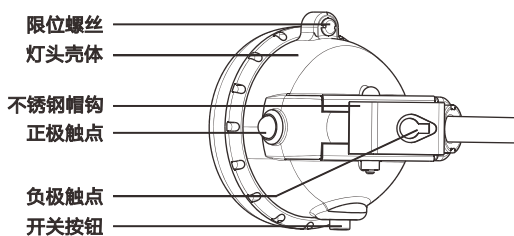
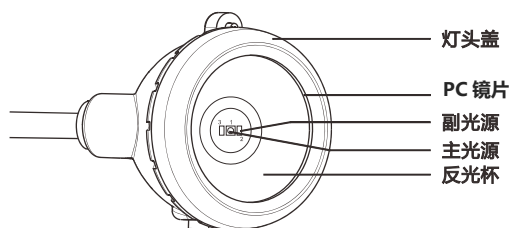
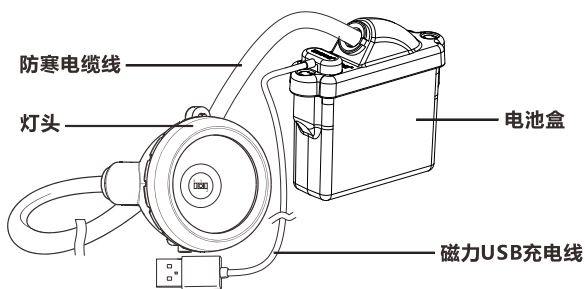
矿灯的主光源拥有 100000 小时的使用寿命,在充满电的情况下,矿灯能够持续工作 13 小时以上,如果在正常条件下工作,锂电池可以重复充电 1200 次。因此在矿灯的整个使用寿命内无需更换锂电池和光源。

2 技术规格

特性		KL4MS	KL5MS	KL8MS	KL12MS
额定容量		4.4Ah	6.6Ah	8.8Ah	12.4Ah
额定电压		3.7V			
LED 主光源工作电压		3.0V			
持续工作时间	超长工时版	24h			
	长工时版	16h			
	标准版	13h			
主光源工作电流	超长工时版	230 mA	340 mA	430 mA	580 mA
	长工时版	340 mA	430 mA	580 mA	800 mA
	标准版	400 mA	580 mA	800 mA	1000mA
主光源功率	超长工时版	0.7W	1W	1.3W	1.8W
	长工时版	1W	1.3W	1.8W	2.4W
	标准版	1.2W	1.8W	2.4W	3W
主光源光通量	超长工时版	100 Lm	148 Lm	178 Lm	235 Lm
	长工时版	148 Lm	178 Lm	235 Lm	301 Lm
	标准版	167 Lm	235 Lm	301 Lm	359Lm
一米的距离灯照度(初始照度)	超长工时版	7000 Lux	10000Lux	11000Lux	16000Lux
	长工时版	10000Lux	11000Lux	16000Lux	23000Lux
	标准版	11000Lux	16000Lux	23000Lux	25000Lux
主光源工作寿命		100000 小时			
副光源功率		0.4W			
副光源工作寿命		40000 小时			
短路保护时间		<320 μ S			
电池工作寿命(重复充电)		1200 次 (在合理的工作条件下)			
使用普通充电架充电时间		4 小时	6 小时	8 小时	/
使用 NWB-20 充电时间		3.5 小时	4.5 小时	6.5 小时	/

使用 NWB-25A/ 智能充电架充电时间	2.5 小时	4 小时	5 小时	6 小时
使用 USB 充电时间	3.5 小时	4.5 小时	6.5 小时	8 小时
电缆线长度	1.4 米或 1.65 米			
尺寸(电池盒)	85x94x 36mm	90x94x 36mm	108x94x36mm	108x94x36mm
重量	460g	500g	550g	550g
电量指示	智能三点光源指示			
适用温度	0~60°C			
防护等级	IP68			

3 结构组件

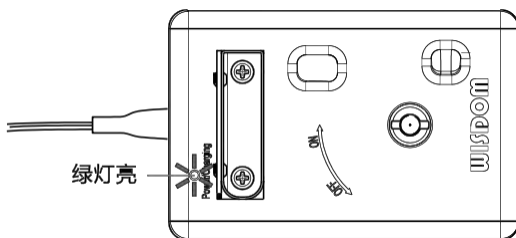


4 使用方法

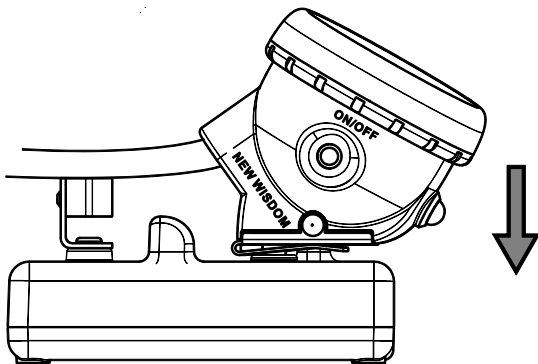
4.1 充电

4.1.1 传统的充电方式

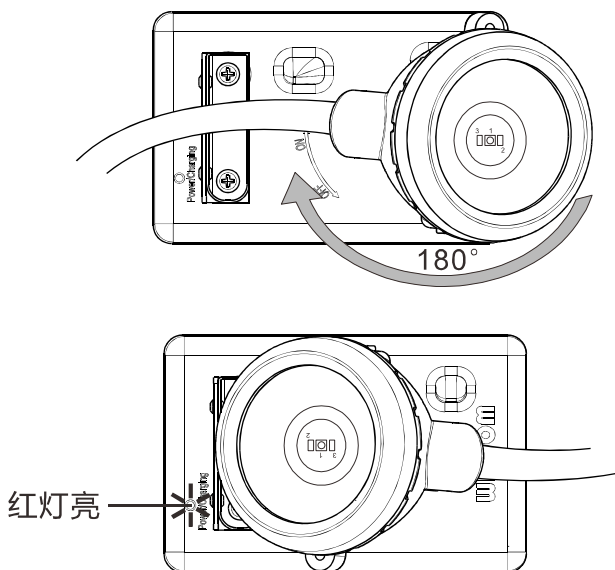
插上单体充电器的电源或打开充电架的开关，充电器的指示灯为绿色。



顺着帽钩组件中的限位装置把矿灯放置在充电器的负极插头上。



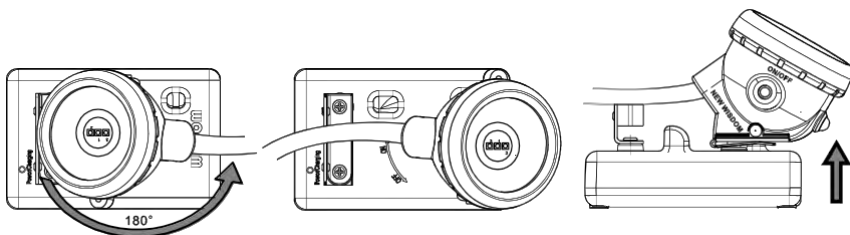
把灯头顺时针转动 180 度，确保灯头的正极触点和充电器的正极弹片紧密接触。此时充电器的指示灯为红色，表示正在充电。



如果使用 NWB-25A 便携式充电器或智能快充版充电架来充电，当充电器的指示灯红、绿相间地闪烁时，表示电池已经充电至 >90%。如果此时把矿灯从充电器上取下来使用，也能连续工作超过 13 小时。当充电器的指示灯为绿灯闪烁时，表示电池已经完全充满。

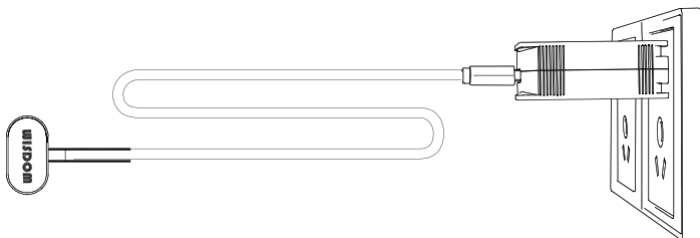
如果使用 NWB-20 便携式充电器或标准版充电架来充电，当充电器的指示灯变成绿色时，表示电池已经完全充满。

把灯头逆时针旋转 180 度，再取出灯头，使矿灯和充电器完全分离。



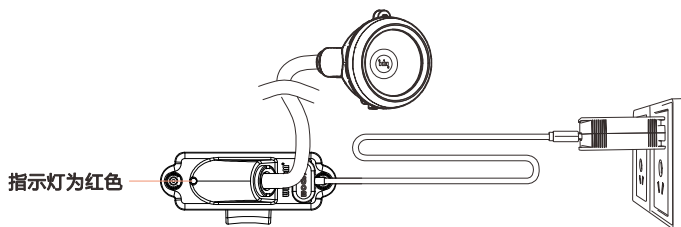
4.1.2 USB 充电方式

将“5V,2A”电源适配器接上磁力 USB 充电线并插入“AC,100-240V”的插座,充电器的指示灯为绿色。(如下图)

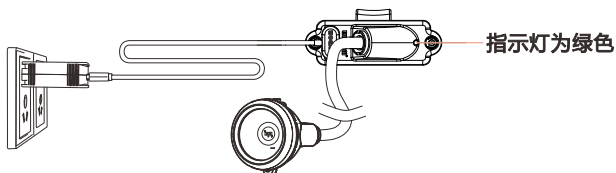


注:各类符合 USB 标准的充电接口设备,都可作为矿灯的充电器使用。

将磁力充电头端子接于矿灯的 USB 充电点,确保磁力头的触点和 USB 充电点位紧密接触。此时矿灯电池盒的指示灯为红色,表示正在充电。

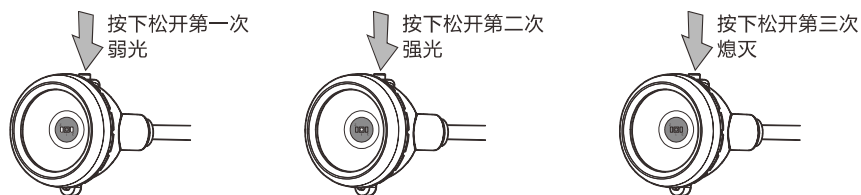


当矿灯电池盒的指示灯变成绿色时,表示电池已经完全充满,此时可取下磁力 USB 充电线正常使用矿灯。



4.2 矿灯的开关

KL4MS、KL5MS 和 KL8MS 的开关都是防水设计的电子开关。按动开关的操作循环如下：



4.3 电量指示

在矿灯熄灭的状态下，长按开关按键超过 2 秒钟，主、副光源的弱光进行电量指示。各 LED 在电量显示 6 秒钟后，矿灯恢复到熄灭状态。

电池电量	指示灯状态
电池电量 \leq 1/3 满	 开 关 关
1/3 满 < 电池电量 \leq 2/3 满	 开 开 关
电池电量 > 2/3 满	 开 开 开

注意：矿灯的电量指示只是一个大概的指示，仅供参考。

4.4 欠电指示

4.4.1 一般电量告警

在电池的电量耗尽前约 1 小时，KL4MS、KL5MS、KL8MS 和 KL12MS 矿灯主光源会有规律明暗交替闪烁（5 秒闪烁一次）用于一般电量告警闪烁灯提示电池电量快耗尽了，需要重新充电。如果不希望矿灯的闪烁而影响照明效果 可以一直按住开关超过 2 秒。矿灯主光源会连续闪烁两次，然后就能把闪烁提示取消掉。矿灯恢复正常照明的状态。

4.4.2 紧急电量告警闪烁

在电池电量仅足以维持照明 10 分钟左右的时候，矿灯主光源会有规律明暗交替快闪（每 2 秒闪烁一次）用于紧急电量告警闪烁灯提示电池电量已经耗尽了，需要马上充电或切换到副光源照明。

5 常见故障和处理方法

故障描述	故障分析	处理方法
按键不能开灯	电池电量耗尽	将矿灯接到充电器上充电
放电时间不足	电池没充满	充电时确保矿灯和充电器的良好接触

6 注意事项

- 1) 矿灯出厂前已经充电至半饱，使用前应先用充电器对矿灯充电至充满。
- 2) 必须采用本产品配套的单体充电器或充电架或磁力 USB 充电线进行充电，如果使用非针对锂离子电池设计的其他充电器充电，会损坏矿灯。
- 3) 为了保证矿灯的照明质量，请注意及时清洁矿灯的灯头 PC 镜片。
- 4) 如果矿灯长时间不用，请每隔两个月进行一次这样的操作：
完全充电 → 完全放电 → 2 小时充电的维护操作。
- 5) 为了确保 USB 的充电功能正常，请及时清洁 USB 充电点限位槽里的污垢。

7 安全警示

- 1) 矿灯在工作时不能直接对人眼睛照射，否则强光会损伤人的视力。
- 2) 严禁随意拆卸矿灯的零部件，缺少零件的矿灯严禁下井使用，否则会影响安全性或可靠性。
- 3) 严禁摔打矿灯。
- 4) 严禁在井下对矿灯充电。
- 5) 严禁将矿灯靠近或投入火源中。
- 6) 严禁在井下拆、卸矿灯或更换零部件，矿灯的维护、维修工作必须在地面进行，不能随意改变矿灯结构及零部件。
- 7) 不得擅自拆卸、维修电池部件。
- 8) 报废矿灯应集中处理，不得随意丢弃。

8 包装

套矿灯纸盒包装，外型尺寸：170 x 100 x 83 mm，0.6kg

外箱包装，每箱 20 盒，外型尺寸：38 x 22.5 x 44 cm，13kg

9 矿灯部件图

中孚能 KL4MS/KL5MS/KL8MS/KL12MS 灯头配件图

1.灯头盖

2.PC 镜片

3.灯头密封圈

4.反射器

5.LED 光源及铝散热器

6.按钮组件

7.灯头电路板

8.灯头壳体

9.紧固电缆的锁母及密封圈

10.帽钩组件

11.灯头盖限位螺丝

12.电缆线

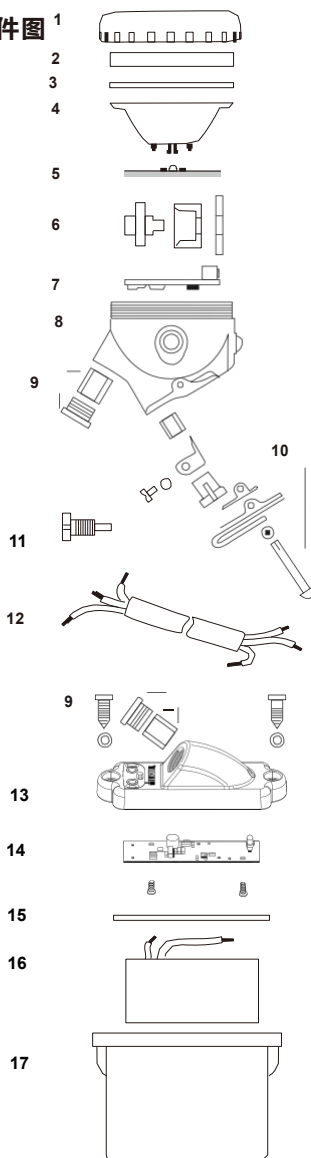
13.电池盒盖

14.充电电路板

15.电池盒密封圈

16.4.4Ah (KL4MS)/6.6Ah(KL5MS)/8.8Ah(KL8MS)
/12.4Ah(K12MS)带保护电路板的锂离子
电池组件

17.电池盒体



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10 产品专利和认证

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KL4MS/KL5MS/KL8MS/KL12MS CE 认证、ATEX 认证、ROHS 证书



KL4MS/KL5MS/KL8MS 通过 IP68 测试

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