OPERATING INSTRUCTIONS-TECHNICAL SHEET

MODEL MEANDRE 1.0 - Wide Spot 20°x40° option

Product certified:

Product in conformance with the requirements of the standards:

Electric security according to: EN 60598-1 (2015) / EN 60598-2-4 EMC according to EN 61547 (2009)

Thank you for having purchased a MEANDRE TECHNOLOGIE lamp, we really hope you will enjoy bringing day-light everywhere with our product. Our MEANDRE 1.0 is the fruit of more than two years of development and prototypes testing by professionals, high level cavers, divers, skiers, riders and alpinists. We made many trials to find the best solutions in order to offer you a robust and high tech lamp, able to bring you a unique visual comfort even in severe service conditions. Our MEANDRE 1.0 will flood your environment with its powerful and homogeneous pure white light spread with an ultra-wide 120° angle.

In order to get an optimal and safe use of your new "MEANDRE 1.0" please read carefully the following instructions and store them for further consultations. These instructions are also available on our website: *http://www.meandre-technologie.com/fr/*

Kind Regards, The MEANDRE TECHNOLOGIE team

This document consists of seven pages

GENERAL INFORMATION

Manufacturer's warranty:

Our products are made from the highest quality components and are assembled by our team in our French workshop. Our lamp and its accessories are provided with a one year warranty, the batteries are provided with a six months warranty. The warranty period begins on the purchase date of the products.
Before delivery all the batteries and lamps are tested to ensure you a complete satisfaction. If unfortunately despite of all our efforts your lamp exhibits a manufacturing defect we will replace or repair it, in that case please contact us on our website.
Our warranty is only valid if the lamp is used according to the precautions described in this document, even if we conceived a product aimed to be as robust as possible we cannot warranty our lamp is case of violent shocks or if it is improperly used or opened.
This warranty covers all possible manufacturing defects and exclude damages involved by wear (including but not limited to: scratching of the glass, wear of cables, abrasion of all metallic part…) or inappropriate use such as defined in the safety notice.

Operating voltage:

MEANDRE 1.0 operates in the voltage range of 7 to 8.5 Vdc and from 10 to 12 Vdc.

Note : The product operates also between 8.5 and 10 Vdc but the end of battery prevention function will not be reliable in this voltage range as this is a common voltage range between a fully charged battery of 8.5V and a discharged 10V battery.

Light power settings:

Mode 1: 120° FLOOD LED only, LED set at 7% of power which is equivalent to 100 lumens (eco or survival mode)
Mode 2: 120° FLOOD LED only, LED set at 20% of power which is equivalent to 300 lumens (progression or work mode)
Mode 3: 120° FLOOD LED only, LED set at 100% of power which is equivalent to 1500 lumens (full flood mode)
Mode 4: 20°x40° SPOT LED only, LED set at 100% of power which is equivalent to 1500 lumens (full spot mode)
Mode 5: 20°x40° SPOT LED + 120° FLOOD LED, both LEDs set at 100% of power which is equivalent to 2x1500 = 3000 lumens

Color temperature: 6000K for both LED

LED type: 2 CREE XHP70 (nominal max output 4022 lumens)

Sealing:

IP69 at -150m in water (for the lamp, the batteries boxes and our IP69 connector)**.**

Warning: the lamp is waterproof only when it is connected directly to the battery box or when using our IP69 connector. This one must be connected male and female locked correctly. Outside these two contexts, we do not guarantee the watertightness of the lamp. Before connecting your IP69 connector always ensure the connection system in clean, check the presence and the wear status of the two O-rings seals and if needed replace or clean them. O-Rings can be lubricated using an hydrophobic silicon based lubricant for facilitating connector sealing and enhance the O-rings lifetime.

Materials: Lamp, I069 connector and battery boxes are made of anodized aeronautical aluminium grade, screws are made of stainless steel. Connecting cable are made from military / industrial grades materials. Lamp glass is made of polycarbonate of 3 mm thickness.

Amagnetic behaviour:

Our lamp is amagnetic and fully compatible with magnetic measuring devices.

Flicker frequency in mode 1 and mode 2:

1500 Hertz (no modulation on modes 3, 4 or 5)

Temperature of use:

Minimal service temperature: -40°C (-40°F) / Maximal service temperature: +50°C (+122°F). Our lamp is equipped with a temperature control which will reduce automatically the light power to avoid overheating which can be expected in hot environment if the lamp is used for a long time on the high level modes.

OPERATING INSTRUCTIONS

Battery insertion, charge and good practices to enhance their lifetime:

At delivery, the Ansmann batteries we provide are charged at approximately 20% of their capacity, please ensure to fully charge them before first use especially if you plan to need lighting for a consequent time.

Our batteries are Lithium-ion batteries. They cannot suffer from any significant impact and especially not be thrown in fire.

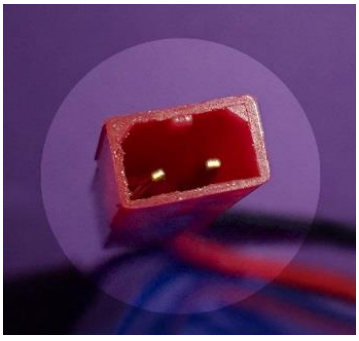
At end of their life batteries should be collected according to local legislation regarding batteries recycling or storage.

For charging your batteries you can connect them directly to our Ansmann chargers, for lamps equipped with our IP69 or IP65 connectors, the connector can be directly connected to the charger. In all cases, even if all our connectors are indexed (see picture below), be careful to respect polarity while connecting the components together.

Approximate time needed to charge your batteries:

Battery type 11.1V / 2.6Ah: 3h45
Battery type 11.1V / 5.2Ah: 7h30
During charging an orange LED indicates that the charge is in progress

Once the orange LED is not lighten anymore that means the battery is fully charged.



Polarity index

To enhance your batteries lifetime never let them discharge totally and do not store them for a long time if they are close of total discharge.

If you plan to do not use your lamp for more than one week disconnect the batteries from the lamp. A good practice for storing batteries while not using them is to keep them disconnected in a cool and dry place at approximately 50% of their charge capacity.

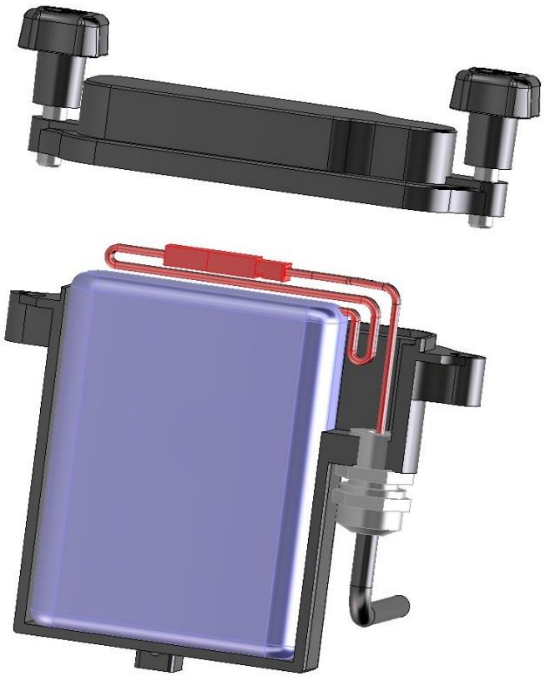
Our battery boxes are provided with two types of closing screws, one of them is filled with plastic head allowing you to opening the box by hands. For caving and some underwater activities (such as cave diving) the screws with plastic heads shall not be used as they could induce an opening of the battery box in case of shocks or contact with the rocks in narrow passages. For such activities always use the naked stainless steel screws provided (or equivalent) and remind to bring an adapted tool with you if you need to replace the battery.

Please ensure before closing the battery box that the connecting cables are properly positioned as per drawing n°1 thereafter. Never close your battery boxes with an excessive force applied on the screws, it will risks to damage the sealing gasket as well as damage the box threads and there decrease the water resistance.

For activities implying the need of having fully charged emergency batteries (as for example long caving explorations activity), we suggest you to sometimes make your rescue batteries works, it will increase their lifetime.

If you plan to travel by plane with your lamp please ensure with your flight Company that Lithium-ion batteries are allowed on flight and ask them where and how they should be stored during the flight.

Risk of explosion: We guarantee our Ansmann branded batteries only with the use of Ansmann chargers.



Drawing n°1: Illustration of proper positioning of cables and their connectors inside the battery box

Lamp mounting:

Our MEANDRE 1.0 is designed to be fixed by the means of two M5 stainless steel screws (as per drawings consigned later in the document)

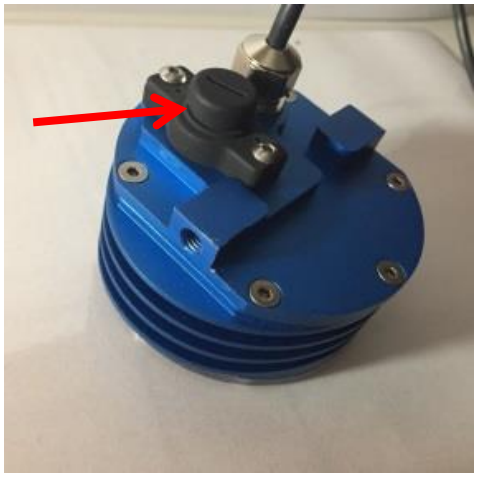
Depending on your will, we provide different types of mounting in order to fit with all possible activities. If you cannot find a mounting solution for a special application, please contact us and we will try to propose you a solution.

Please note that for mounting your lamp on a helmet, depending on the type of helmet and mounting used, you may need to pierce some small holes in your helmet. We underline the fact that such modification will certainly invalid the warranty of the helmet's manufacturer and we cannot take any responsibility about potential consequences of these modifications on your helmet.

Depending on your helmet type we can provide mounting solutions fully compatible with helmets manufacturer's warranty, for more information regarding this topic please contact us and provide us the type of helmet you are planning to use.

Lamp settings:

The lamp has only one push button. This push button makes it easy to switch between the five modes. Just one press will switch from a mode to the next mode.



Switch on: Press the push button on the back of the lamp during 3 to 4 seconds. The lamp always starts in mode 1 (100 lumens)

Change of mode: Press the button once to change the light setting to the next mode**.** Activating the push button will change the setting in the following cyclic way: 1-2-3-4-5, 1-2-3 …

Switch off: Press the push button on the back of the lamp during 3 to 4 seconds regardless of the mode on which the lamp is set.

Information on lamp autonomy as function of the light output settings:

The following values are resulting from tests carried out using our batteries in their delivery state at a room temperature of 20°C. Please note that autonomy of batteries is a function of their temperature, in cold environment autonomy of your batteries will be lower than indicated in the following table:

Each duration is given for a complete discharge of the battery in question

MODE	Light output (Lumens)	Bat. Li-ion 11.1V 2.6Ah	Bat. Li-ion 11.1V 5.2Ah	Bat. Li-ion 7.4V 5.2Ah	Bat. LI-ion 7.2V 6.8Ah
1	100	70h	140h	100h	140h
2	300	13h	26h	18h30	25h
3	1500	4h30	9h00	6h30	8h45
4	1500	4h30	9h00	6h30	8h45
5	3000	2h40	5h00	3h15	3h45

End of battery charge prevention:

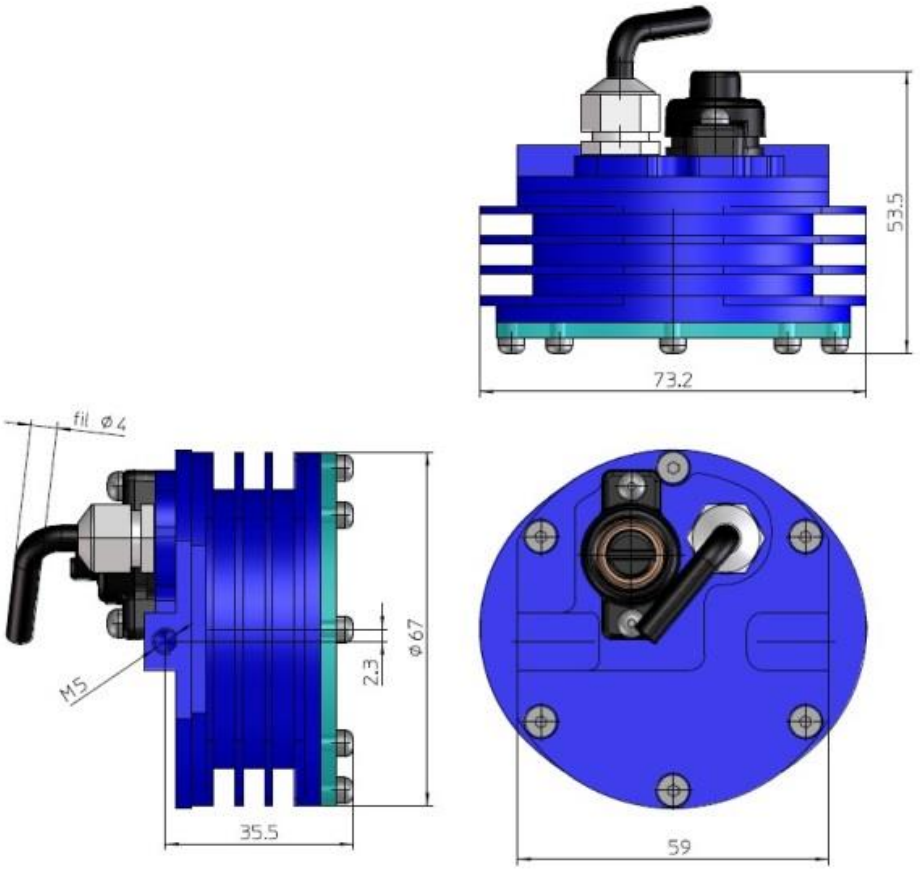
When your battery will arrive at approximately 10% of its total capacity for the mode on which the lamp is set, a luminous signal will inform you that your battery arrives at end of its capacity. You will then see a micro cutting in the light (during 30 milliseconds approx.) which will repeat itself every twenty seconds. This signal will stop if you set your lamp to a lower light output and this same signal will appear again when your lamp will be at 10% of battery capacity for this new mode.

For example, if you are using our 11.1V 5.2Ah Li-ion bat battery on mode 5 (3000lm) at 20°C, when the luminous signal will activate itself that will mean you still have the following autonomy :

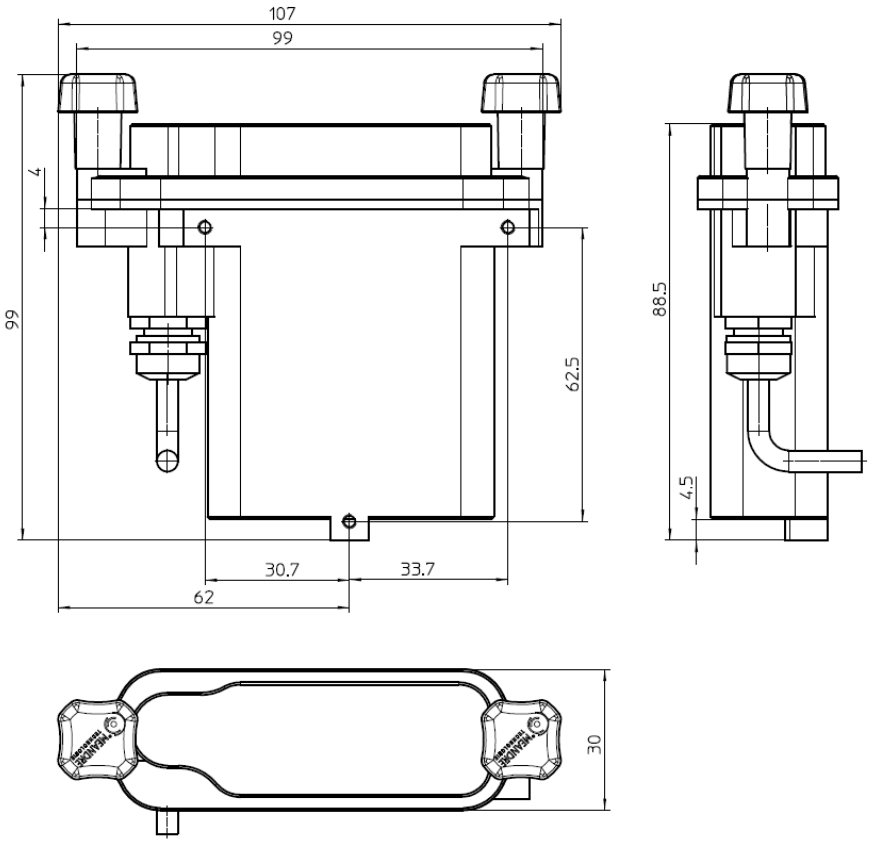
Mode 1: 14 hours
Mode 2: 2 hours and a half
Mode 3: 50 minutes
Mode 4: 50 minutes
Mode 5: 30 minutes

Depending on your activity you can decide to switch the lamp to one of the lower modes or directly replace the battery.
Warning: the discharge of the battery is not linear. It accelerates when the battery reaches the end of its capacity.

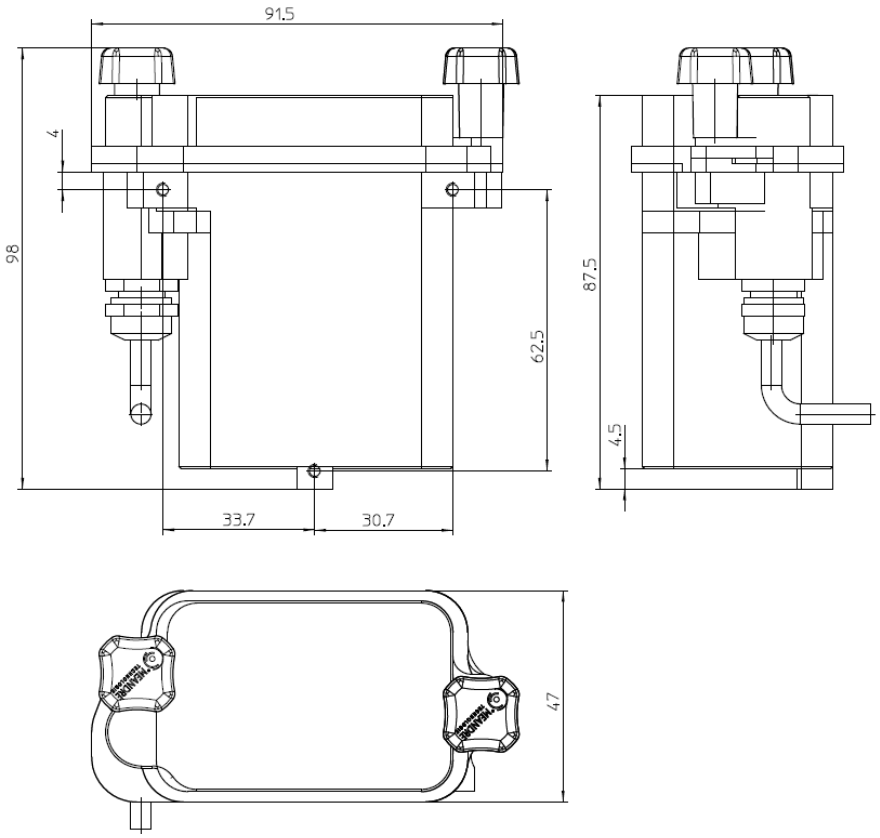
OUTLINE DRAWINGS



Drawing n° 2: MEANDRE 1.0 lamp outline



Drawing n° 3: Three cells battery box outline



Drawing n° 4: Six cells battery box outline

PREVENTIVE CARE

If you use the lamp for diving, cave diving, underwater activities, canyoning or all kind of activities involving consequent submersion of the lamp in water : Always ensure, through a visual examination during your equipment preparation, that all the sealing gaskets are in good conditions, that the lamp glass is not cracked and that your connectors (if any) are properly sealed. Deformed, damaged of too old gaskets shall be replaced. To enhance gasket lifetime do not expose them to hot water and direct UV light (include sun light) and periodically clean them if necessary using cold tap water and lubricate them using hydrophobic silicon based lubricant.

If you are using the lamp in highly dirt environment (such as muddy caves for example), try as far as possible to remove periodically the excess of mud which can fill between the fins and decrease heat exchange between the lamp and its environment. This remark is particularly important in case you want to use the high light output modes continuously.

Even if the material chosen for your lamp glass is highly resistant to impacts and therefore should not crack, such situation can be observed in case of extremely strong shock or force applied on the glass. If you notice a crack or a consequent damage of the glass you should then not wait and replace it.

The cable we use for the connection between our battery boxes and our lamp is highly resistant to wear but if you are often caving or diving in caves where you have to pass through narrow passages close to abrasive minerals we would suggest you to pass your cable mostly inside of your helmet in order to protect it from excessive wear. If during your equipment preparation you notice one or more localized excessive wear zone on the cable do not use the lamp and contact our customer service for a cable replacement.

Be sure to charge your battery before each use. You will then be able to take advantage of the autonomy that is offered to you in case of an unplanned event. The human eye adapts itself after few minutes to faint darkness. The progression mode (mode 2) is thus for most of time sufficient for ensuring you a comfortable lighting in most of situations. If you need a long prolonged autonomy, and want to avoid taking with you several batteries, use modes 3, 4 and 5 only when necessary.

If you are using your lamp in seawater always rinse your lamp with tap water after your activity as salt could generate different types of corrosion of stainless steel screws as well as on the aluminum in contact with the stainless steel (galvanic corrosion). Seawater is considered as a corrosive media for most of stainless steels and metallic alloys, in order to avoid such problems we suggest you to perform an in-depth cleaning of your lamp after your diving period. Such cleaning should consists in removing the glass and opening

the battery boxes in order to be able to rinse the screws under tap water and gently swab the salt residues on the aluminium parts using a wet clean cloth, ensure to let all the components dry before re-assembling the parts and take advantage of the situation to inspect, clean and lubricate the sealing joints.

Cleaning: As the lamp is totally waterproof (except for the connector if you have chosen the IP65 one), you can clean it with a cold tap water to remove the major part of dirt, and using a gentle brush to remove dirt between the fins and the rest of the lamp. Don't use an aggressive / abrasive brush to avoid scratching the glass. Washing with hot water is not recommended, it could induce gaskets ageing prematurely.

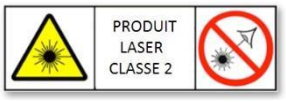
IMPORTANT SAFETY PRECAUTIONS

DISCLAIMER:

This product is a lamp, its purpose is to bring to its user(s) an artificial source of light in order to allow its user(s) to light a zone subjected to darkness or low light. This product shall be used in the scope of its purpose only.
MEANDRE TECHNOLOGY cannot be responsible for the direct or indirect consequences of an improper use of this product.
This product is intended to be used in ambient air (excluding explosive atmospheres, aggressive fumes or all types of atmospheres not comparable to breathable air) and natural water including: seawater, pure water and swimming pool water (excluding model with IP65 connectors for which no immersion is allowed). Immersion of the lamp in any other liquid will invalid our warranty and cannot involve our responsibility.

IMPORTANT SAFETY NOTICE REGARDING DANGER OF DIRECT LED LIGHTING ON HUMAN VIEW:

Our lamp emits high light output and can damage human or animal view if eyes are exposed to the direct LED beam. Therefore, avoid pointing the lamp at the eyes or looking at the lamp during operating mode.



IMPORTANT SAFETY NOTICE REGARDING FLICKERING WHILE WORKING WITH HIGH SPEED ROTATING OBJECTS:

The light flicker frequency used to regulate the light power on modes 1 and 2 is set at 1500 Hz according to recommended practice reference IEEE Std 1789 – 2105 in order to enhance visual comfort and to allow the possibility of taking pictures on low power modes using most of cameras.
As flicker regardless of the frequency used can induce illusion of immobility or slower rotation speed of rotating tools, modes 1 and 2 shall not be used in such conditions. While working with rotating tools always ensure your lamp is set on mode 3, 4 or 5.

IMPORTANT SAFETY NOTICE CONCERNING RISKY ACTIVITIES IMPLYING THE VITAL NEED OF AN ARTIFICIAL LIGHTING:

For all type of activities described above (including but not limited to : caving, cave diving, diving, alpinism, mining…), even if your lamp is a high quality product it remains an electronic device which can fails in its functions without preliminary signs. If you decide for your own or have to perform such kind of activities you must have in your possession at least one emergency light, such light should be in good working conditions and adapted to your activity in term of light output and needed emergency autonomy. MEANDRE TECHNOLOGY cannot be responsible for all direct or indirect consequences which can be induced by a potential failure of the MEANDRE 1.0 (including the lamp and its associated accessories) during an activity involving the vital need of an artificial lighting.

In addition to your emergency lamp(s) we highly suggest to always have with you a fully charged emergency battery and a tool adapted to the screws of your battery box if you are not using the screws with plastic heads.

IMPORTANT SAFETY NOTICE REGARDING THE MINIMUM AGE NEEDED TO USE OUR PRODUCTS:

MEANDRE 1.0 is a professional tool aimed to be used by adults only, this product shall be kept out of the reach of children. If children are using this product it should only be under the surveillance of their parents or other adult persons authorized to do so.

IMPORTANT SAFETY NOTICE REGARDING PRESENCE OF INFLAMMABLES SUBSTANCES:

Connection of the battery to the lamp can create micro sparks between the connectors during their assembly. For this reason never operate with your battery close to inflammable substances or in explosive atmosphere.