

User manual Maxi uni / Mini uni



Safety Advice

- Before using the torch, ensure that you read and understand the safety advice leaflet so that the torch is always operated correctly.
- Never point the light beam at your or other persons eyes. Doing so could damage the retina.
- Keep the torch away from children.
- Never attempt to take the torch apart unless it is specifically directed in the operating instructions. Doing so can result in severe injuries and electric shocks. Servicing of internal components, servicing or repairs have to be carried out by qualified persons, authorized by the manufacturer.
- If smoke or steam appears, switch off the mains or battery supply immediately. Disconnect the torch head from the battery and remove the charger from the socket.
- Do not touch the charger's power cable with wet hands as there is danger of an electric shock or short circuit. To disconnect, depress the catch on the connector whilst withdrawing it from the charging adapter plug. Do not disconnect it by pulling on the cable.
- To prevent overheating, damage, fires, electric shocks or other dangers only use the charger and attachments supplied.
- Keep the torch and battery pack away from open fires or sources of heat as it could lead to overheating, fires, electric shocks and explosions and cause severe injury.
- Never attempt to change or take apart the battery pack. To do so could lead to injury by explosion.
- Do not drop the batteries or battery packs and protect them from impact. Damage could result in leakage of the battery chemicals and result in injuries.
- Clean with water all areas of the body (especially mouth and eyes) or clothing that come in contact with battery chemicals.
- Never short across the battery contacts with metal objects (e.g. key rings, screwdrivers etc) as this could result in overheating and to burns and other injuries.
- After charging disconnect the charger from the battery pack and the mains socket to avoid fires or other damage.
- The charger supplied with the torch has been developed for use exclusively with the torch and battery pack. Do not use it with other products or batteries as this could result in fires or damage.
- Use and store the torch, battery pack and charger away from exposure from heavy solar radiation or high temperature (e.g. the dashboard or the boot of a car etc.). Heavy solar radiation and heat can lead to leakage, overheating or explosion of the batteries which can result in fire other damage.
- While charging the battery pack keep it in a well ventilated area.
- Charge the battery pack at room temperature.
- If the batteries become too warm, cease charging immediately. Normal temperature is slightly higher than "hand-hot" (+/- 50 degree)
- Let the batteries cool down after charging.
- Use the torch, battery pack and accessories only when diving. Using the products or other component parts for other purposes is not allowed.

Maxi uni

General Care and Usage Instructions

- The O-rings (sealing rings) should only be removed if they require replacing.
- Lubricate the O-rings occasionally with a smear of silicone grease. Please do not apply too much grease. Do not use silicone spray !
- Regularly inspect the O-rings for damage or contamination, and change them if necessary. We recommend that you carry spare O-rings.
- The torches can be operated out of water for a short time, however they will become very hot very quickly so do not leave unattended. Only operate until the torch head becomes warm.
- After use rinse the torch thoroughly with fresh water whilst still attached to the umbilical and battery pack. Never use any other cleaning agents.
- Do not shine the torch into your eyes or the eyes of others as severe damage to the retina could result.
- When transporting the torch, make sure, that the first O-ring on the battery tube is visible. Turn the lamp head out until you see the first O-ring during the transport.

PLEASE NOTICE THE VIDEOS FOR GREASING THE O-RINGS ON THE HOMEPAGE OF TILLYTEC OR ON OUR YOUTUBE CHANNEL !

Advice on Using Battery Chargers

- Possible non rechargeable and rechargeable batteries:
 - 3 x AAA alkaline batteries in a battery holder (optional *)
 - 3 x AAA NiMH battery in a battery holder (optional *)
 - 1 x 18650 accumulator with mit space holder (optional *)
 - 1 x 26650 accumulator
 - 2 x 26650 accumulator in the long battery tube and battery holder (long battery tube and battery holder optional*)
 - 1 x 21700 accumulator
 - 3 x 21700 accumulator in the battery tube short compact (battery tube short compact optional*)
- **For the cell 18650 / 26650 / 21700 we recommend only to use batteries from type LiCoMn / LiCoNi (lithium – cobalt – mangan / lithium – cobalt - nickel). Otherwise there is danger for explosion !**

*available only at TillyTec

All mentioned batteries and suitable charger are available at shop www.tillytec.de at register tools !

Maxi uni

Notes on the use of mechanical dimming

The mechanical dimming does not work as a electronics, it works with a spring. Switch on the dimming as follows:

- Screw in the battery tube short completely = light power 100 %
- Screw the battery tube short few millimeters in the direction of „OFF“ = light power is dimmed
- Screw battery tube short further in the direction „OFF“ = the light is off

As long as the battery tube is turned, the light is flickering. This is normal and owed to the mechanics.

If the battery tube is not turned, the light no longer flickers.

If the light flickers even in the position, when the torch is completely on, clean first the silver border of the battery tube short. Over time of using the torch deposits (grease rests etc.) can place here, which must be removed. Please also note that the contacts on the LED module are kept clean.

Which one LED module is used ?

Usually there is no optical recognition of which LED module is installed.

Thats why you should read the following hints :

The LED module is marked on the back of the LED board.

Unscrew the short battery tube or the battery tube short compact or the umbilical from the lamp head.

Then look into the open lamp head from behind.

There are 4 coloured dots, always starting with white.

So the first white dot plus 3 additional coloured dots.

This results in a colour code.

The colour code you find under www.TillyTec.de in the downloadcenter under :

- > INFORMATION
- > User manuals / possible components
- > Possible – components view / download

Find the appropriate colour code from the table. You will see here the name of the LED module, as well as the possible configurations with batteries and rechargeable batteries, as well as the corresponding burning times.

Maxi uni

Notes for using of charger

- The hints of the operating instructions of the manufacturer are to be observed.
- The charger has several LED lamps that indicate the progress of the battery charge.
- **The charger can connected to the battery everytime. You do not have to discharge the battery !**
IMPORTANT: Use chargers only indoor or in dry rooms. The voltage values and settings must be respected.

Burn time and light power

- The burn time and the light power of the torch depends on
 - the used LED modul
 - the used type of battery or accumulator.**TIP : When the LED module of the MAXI uni is not bright enough we will send a stronger LED module for trial for free.**
- More information about burning time and light power you will find on www.TillyTec.de – on register „information“.

Operation and Handling / Changing the LED moduls

- To turn your torch on and off, rotate the torch head. A half rotation is sufficient to engage the contacts. Further rotation when switching off is not a problem as the system is protected with 3 O-rings, however it should be stopped when the first O-ring is visible.
- How to change the LED modul you can see on the website www.TillyTec.de or at the TillyTec youtube channel. **Please have a look !**

IMPORTANT : Tighten the space holder very strong by hand. Otherwise the cooling of the LED module is not enough. So the LED module will be destroyed immediately !

- The space holder is hand tightened to press the LED module against the glass. This is necessary so that the LED module can be cooled well. **Without cooling the LED module is destroyed !** The space holder should be clean and free of grease on the flat side, where the LED module lies cloosly for cooling (cooling paste may be used). If you use a version where the LED module is screw on the pace holder with socket screws, please screw the LED – module tightly tot he space holder.

Videos, which explain the change of the LED modules, can be found on the homepage of TillyTec (www.TillyTec.de) or on our own Youtube channel. PLEASE LOOK THEESE VIDEOS !!!

Maxi uni

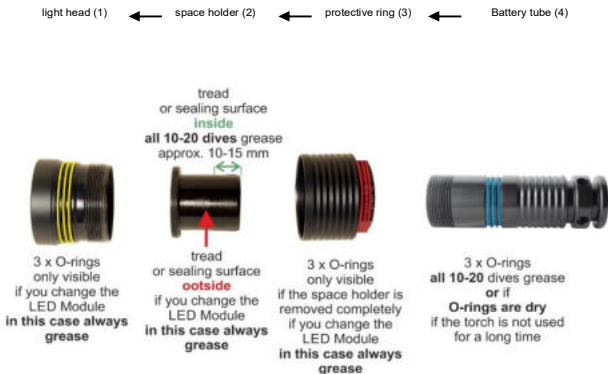
- After the space holder is screwed hand tight, the battery tube is screwed together with the battery in the lamp head to see if the torch is working. **Screw the battery tube only slightly ! not strong !** Screw it only until the torch is on. Repeat the turning on and off several times and watch the LED module . But never look directly into it ! When switching on and off the LED module should not or only very little rotate (only a few millimeters). If the LED module rotates too much the space holder is too loose.
- **Please check the space holder every 15 to 20 dives and if it is necessary please screw it a little bit stronger !**

IMPORTANT !

To ensure the tightness of the torch please grease the parts as following is shown **regularly**:

- The three O-rings on the lamp head (1) are only visible, when the torch is opened to change the LED Module. **In this case please grease always these O-rings !**
- The tread of the space holder (2) **inside** please grease all 10 - 20 dives . This do only in the range of 10 - 15 mm from the beginning of the hexagon . The tread of the spacer (2) **outside** always grease when the LED module is changed .
- The three O-rings in the protective ring (3) are only visible when the space holder (2) is completely removed. When the LED Module will be changed **always** grease the three O-rings.
- The three O-rings on the battery tube (4) are always visible, when the battery tube is unscrewed This must be greased **at least every 10-20 dives** regularly or whenever the lamp is not used for a long time (approximately 3 months) .

GREASE MEANS : It is to see a glossy film - it is not swimming in grease !
Here again the hint to our videos on www.TillyTec.de or on the youtube channel !



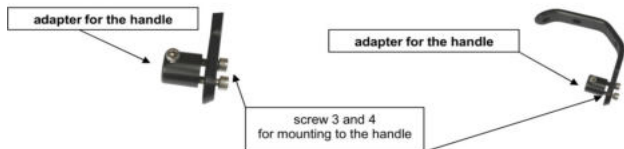
Maxi uni



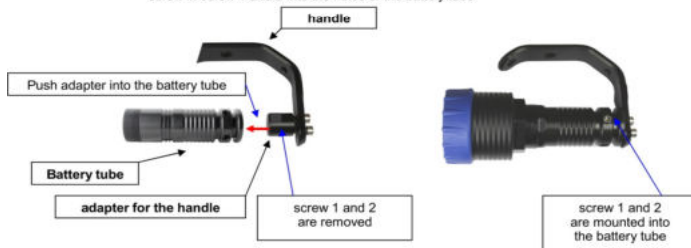
Mounting of the handle



Step 1: Remove screw 3 and 4 from the adapter and screw the handle

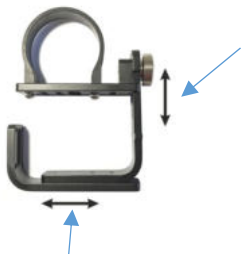


Step 2: Remove screw 1 and 2 from adapter, insert the battery tube into the battery tube, after that screw in screw 1 and 2 into the holes of the battery tube



Maxi uni / Mini uni

Goodman hard heavy duty



The Goodman can be adjusted very quickly in height and hand size by loosening the adjusting screw and moving the Goodman's plate.

Here it can also be rotated completely for transport and protection of the lamp head.

The Goodman can also be adjusted in size by loosening and sliding the allen screw



The hose supplied can be mounted around the lamp head/battery tube of the Maxi uni. This means that the Goodman's clamp sits more firmly at the lamp head / battery tube and the lamp head / battery tube does not spin when the lamp is switched on.



Maxi uni / Mini uni

Goodman hard heavy duty - adapter



The Goodman hard heavy duty offers the possibility to use different combinations of the Maxi uni and Mini uni at the same time. The battery tube short compact can also be used instead of the maxi uni.

The following combinations are possible:

- 1 x Maxi uni / battery tube short compact
- 1 x Maxi uni / battery tube short compact + 1 x Mini uni
- 1 x Mini uni
- 2 x Mini uni
- 3 x Mini uni



For use the Mini uni S3, the **red adapter ring** must ALWAYS be installed. Before mounting on the Goodman hard heavy duty, we recommend first mounting the adapter ring on the Mini uni S3.

Maxi uni

Goodman hard heavy duty – important hints for the using of battery tube short compact



IMPORTANT !!!

The clamp of the Goodman hard heavy duty **MUST** be flush with the battery tube short compact.

If the clamp is not mounted in this way, the battery tube short compact will be **LEAKING !!!!**

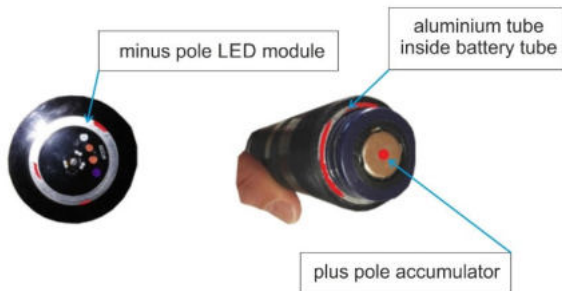
The same applies to your own attachments that are mounted around the battery tube short compact (for example your own clamps, stainless steel clamps and so on)

Fastenings in the rear area of the battery tube are also not permitted and lead to leaks!



Maxi uni

Deposits



● possible deposits

During use the torch it is possible that there are deposits at

- the minus pole of LED module
- the plus pole of accumulator
- the upper edge of aluminium tube which is inside the battery tube

Please don't forget to clean this parts in regulary intervalls (all 10 - 20 dives). We recommend to clean it with a lint-free cloth and glass cleaner (or similar cleaner). Otherwise it leads to the loss of contact and failures of the torch !

Maxi uni

Important notes for the use of the battery cells

- LiCoMn (Lithium Cobalt Manganese) or LiCoNi (Lithium Cobalt Nickel) battery cells do not have any self-discharge.
- Full charged batteries must be recharged after 12 months of storage.
- For a charge after a storage period, the charger can be connected to the battery cells without prior discharge. The charger calculates the remaining capacity and charges the battery cells.
- **After each use the battery should be charged. It does not matter how long the torch was used.**
- **We recommend to remove approx. 30-80 % of the capacity of the battery to improve the lifespan.**
- **Complete discharges until the end of battery capacity reduce the lifespan of battery.**
- The lifespan of battery depends on the following points :
 - how many times is between the using of battery cells and the recharging ? *Battery cells should recharged after using as soon as possible.*
 - how much rest capacity is in the battery cell after the using ? *The lifespan of the cell is much higher if the battery cell is only 30 % of capacity unloaded than 80 % of capacity.*
 - how often you use the battery cells ? *For daily use of the battery cells the lifetime is many times better than a few uses a year.*
- Generally the battery life depends very much on the handling of the user.
- **The battery life is between 7 days and 7 years !**
- Are the battery cells daily used than are 500 to 1000 charging cycles possible.
- Are the battery cells using only some times in the year than the the end of life can be reached after very few charging cycles.
- **In order to guarantee the safety in the TillyTec dive light, we only recommend the use of LiCoMn or LiCoNi accumulators. The use of other Li-Ion batteries, with a different chemistry, is at your own risk. Li-ion battery cells can explode.**

Maxi uni

Important hints for using

MAXI uni battery tube short COMPACT

(short battery tank with 3 pieces of 21700 in the battery holder)



The 21700 batteries must be carefully installed in the battery holder.

- First of all the negative terminal of the battery is pressed on the spring of batterieholder.
- ATTENTION ! Make sure that the inserted battery is not damaged at the border of the aluminum tube.
- Carefully press the battery down until the spring is fully compressed (pushed down).
- Insert the positive pole from the battery under the upper contact board. ATTENTION ! The plus pole from the upper contact board is slightly elevated. The battery can only be inserted into the upper contact board if the battery is pressed strong enough in the spring.

NEVER try to insert the battery forcibly into the upper contact board. The battery will be destroyed in this case !

IMPORTANT : Mount the battery holder with the batteries of type 21700 only when using the torch. After the using of the torch remove the batteries as soon as possible, charge the batteries immediately and store the batteries fully.

Die Akkus dürfen NICHT im Akkuhalter verbleiben oder dort gelagert werden NEVER left in the batteries in the battery holder or store the batteries in the battery holder !

That means :

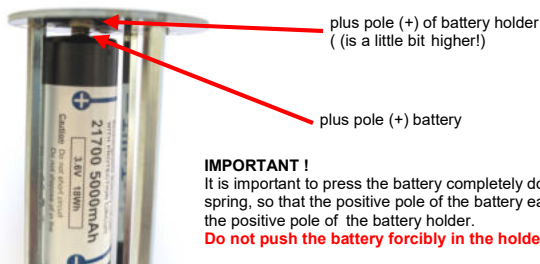
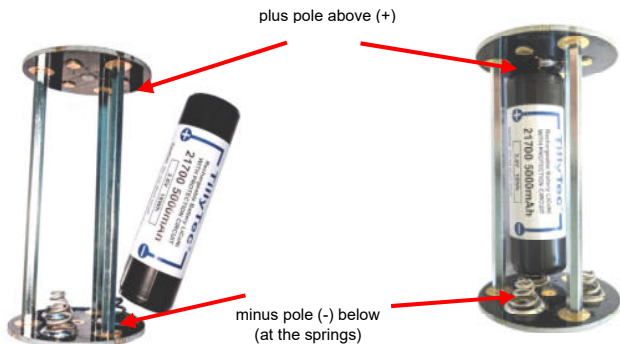
- **Insert batteries before the dive**
- **Immediately remove and recharge the batteries after the dive**
- **Store the batteries necessarily in the battery box**

To improve the lifetime of the batteries, please note the following aspects :

- all used batteries are from the same manufacturer
- all used batteries have the same capacity
- all used batteries have the same numbers of charge cycles
- all used batteries have the same age
- the battery holder should always be equipped with the number of batteries for which it is intended (here 3 pieces of batteries)

Maxi uni

Important hints for using
MAXI uni battery tube short COMPACT
(short battery tube with 3 pieces of 21700 in the battery holder)



IMPORTANT !

It is important to press the battery completely down on the spring, so that the positive pole of the battery easily slip under the positive pole of the battery holder.

Do not push the battery forcibly in the holder !.

The battery holder can be equipped with 1 OR 2 OR 3 batteries 21700 ! In this case dummy cells should be used so that the built-in battery(ies) do not slip out.

In this case please contact TillyTec !

Maxi uni

Important hints for using

MAXI uni battery tube short COMPACT

(short battery tube with 3 pieces of 21700 in the battery holder)

- **NEVER !** transport the battery tube short compact with open contacts when the 21700 batteries are assembled in the battery tube.
- It can happen that there is a short circuit and fire danger !
- It is always important, that you mount a Maxi uni lighthouse at the battery tube short compact if the batteries are mounted to protect the contacts.



**DO NOT TRANSPORT WITH
OPEN CONTACTS ! ALWAYS
USE A MAXI UNI LIGHTHEAD !
IT LEADS TO SHORT CIRCUIT
AND FIRE DANGER !**



Maxi uni

Important hints for using MAXI uni battery tank with umbilical



IMPORTANT : Mount the battery holder with the batteries of type 21700 only when using the torch. After the using of the torch remove the batteries as soon as possible, charge the batteries immediately and store the batteries fully.

NEVER left in the batteries in the battery holder or store the batteries in the battery holder !

That means :

- **Insert batteries before the dive**
- **Immediately remove and recharge the batteries after the dive**
- **Store the batteries necessarily in the battery box**

To improve the lifetime of the batteries, please note the following aspects :

- all used batteries are from the same manufacturer
- all used batteries have the same capacity
- all used batteries have the same numbers of charge cycles
- all used batteries have the same age
- the battery holder should always be equipped with the number of batteries for which it is intended (here 3 pieces of batteries)

Maxi uni

Important hints for using MAXI uni battery tank with umbilical

- **NEVER !** transport the end of umbilical from the light head with open contacts when the 21700 batteries are assembled in the battery tube.
- **It can happened that there is a short circuit and fire danger !**
- It is always important, that you mount a Maxi uni lighthouse at the umbilical if the batteries are mounted to protect the contacts.



**DO NOT TRANSPORT WITH
OPEN CONTACTS ! ALWAYS
USE A MAXI UNI LIGHTHEAD !
IT LEADS TO SHORT CIRCUIT
AND FIRE DANGER !**



Mini uni



General Care and Usage Instructions

- The O-rings (sealing rings) should only be removed if they require replacing.
- Lubricate the O-rings occasionally with a smear of silicone grease. Please do not apply too much grease. Do not use silicone spray !
- Regularly inspect the O-rings for damage or contamination, and change them if necessary. We recommend that you carry spare O-rings.
- The torches can be operated out of water for a short time, however they will become very hot very quickly so do not leave unattended. Only operate until the torch head becomes warm.
- After use rinse the torch thoroughly with fresh water whilst still attached to the umbilical and battery pack. Never use any other cleaning agents.
- Do not shine the torch into your eyes or the eyes of others as severe damage to the retina could result.
- When transporting the torch, make sure, that the first O-ring on the battery tube is visible. Turn the lamp head out until you see the first O-ring during the transport.

Advice on Using Battery Chargers

- You can use :
 - - 1 x 18650 rechargeable battery
 - - 1 x 21700 rechargeable battery
 - - 3 x AAA non rechargeable batteries (1,5 V) or NiMh rechargeable batteries (1,2 V)
- **For the cell 18650 and 21700 we recommend only to use batteries from type LiCoMn (lithium – cobalt – mangan). Otherwise there is danger for explosion !**
- **When using the battery 18650 and 21700 the light intensity is about 2 times as bright, compared to the standard 3 x AAA alkaline batteries!**

* available only at TillyTec

**All mentioned batteries and suitable charger are available at
TILLYTEC.de under accessoires !**

Mini uni

Advice on using LED modules

- There are many different so called „P60 Drop in“ LED modules, not only the original from TillyTec.
- To install and remove the LED modules you can see videos on www.TillyTec.de or at the TillyTec youtube channel!

Notes for using of charger

- The hints of the operating instructions of the manufacturer are to be observed.
- The charger has several LED lamps that indicate the progress of the battery charge.
- **The charger can connected to the battery everytime. You do not have to discharge the battery !**

IMPORTANT: Use chargers only indoor or in dry rooms. The voltage values and settings must be respected.

Burn time and light power

- The burn time and the light power of the torch depends on
 - the used LED module
 - the used type of battery or rechargeable battery.**TIPP : Various LED modules can be purchased on the internet market, starts from about 6 Euro. Search for "P60 drop in" modules !**

Operation and Handling / Changing the LED moduls

- Unscrew the rear part of the Mini uni (has a spring).
- Install the 18650 / 21700 rechargeable battery or non rechargeable batteries AAA with the positive pole pointing upwards towards the head.
- Unscrew the rear part (with spring).
- Switching on and off is done by turning the rear part of the battery tube (**NOT AT THE FRONT OF THE FRONT ATTACHMENT !**). Half a turn is enough to start the process. If you turn several times when switching off does no harm, because the seal is made with three O-rings. The turning should be stopped when the last O-ring is visible.
- The LED modules are changed according to the instructions on www.TillyTec.de or at the TillyTec youtube channel. **Please take a look necessarily !**



Mini uni

