www.UwaVis.de

Beleuchtungssysteme

(Lighting Systems)

Battery charger and canister

Operating instructions for the battery pack

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1 Overview

Thank you for your decision to purchase an **UwaVis** product.

The company **UwaVis,** is a division of WINGSANDMORE GmbH & Co. KG, has for many years been involved with underwater technology. We design, develop and manufacture a wide range of products in our facility for both domestic and international clients.

The battery pack and canister combines the ideal technical diving properties: small, compact, robust and powerful.

Our newly developed closure system does not have the traditionally cumbersome external closure clasps.

At the moment, the UwaVis system is the smallest and lightest 25 Ah battery pack.

We wish you much fun with your new battery pack / canister, and as always, safe diving.

2 Safety

Please read the instructions carefully!

Observe the electrical and mechanical operating limits of the battery canister / battery packs.

Any failure to comply may result in damage to the product and risk serious injury.

3 Specifications

Dimensions:

Length (without cable and boot)	270 mm
Diameter	61 mm
Weight (depending on cable type and cable length)	1150 – 1500 g

Electical properties:

Battery type	Lithium-Ionen, 10,8 / 11,1 V
Electrical design	3S 7P
Capacity	265 Wh
Maximum discharge current, short-term	20 A
Maximum discharge, duration	150 W
Maximum charging current	10 A, rating: 5 – 6 A
Charge voltage (4.1 V / cell for 80%, 4.2 V / cell for 100%)	12.3 V 80% charge (increased Lifetime) 12.6 V 100% charge
Level indicator on the battery pack	5 colored LEDs (on battery pack)

Materials:

Canister body	Carbon fiber
Head	POM

Properties of suppression:

Discharge, depending on the load (<2.9 V / cell)	about 8.5 V (with safety shutdown)
Overcharge protection (> 4.3 V / cell)	approximately 13 V

Range of application:

Depth rating / compressive strength	200m depth (600ft +)
Temperature range	-20 ° C - 60 ° C (-4° F - 140° F)

4 Package Contents

The package includes the following items:

1. Carbon fiber canister with battery pack and head
2. Two Spare O-rings
3. charging cable
4. charger (optional)

5 Voltage level and polarity

5.1 Voltage level and charge states:

The battery pack used is a lithium-ion battery. A with all lithium-based battery there are a few basic rules, allowing the safe and long operation.

The battery life is largely affected by the state of charge. A charge state "completely empty" and "completely full" for extended periods of time will shorten the life and performance of all lithium-based batteries considerably.
For this reason, lithium batteries should if possible be operated only in the mid range of a state of charge. For example the cells some hybrid cars are only charged to between 30% and 70%.

We define extended periods being greater than 7 days. For prolong periods of storage, we recommend a charge status ranging 40% - 50%. The battery pack status corresponds to the level indicator of the orange LED or the first green LED. For more details go to section 7.2 Long Term Storage.

The charger offered by UwasVis has an extra program (storage). This program provides the charger charge levels independently. Depending on status of the battery the charger can be programmed to charge or discharge to achieve 40% of it load capacity.

For extending the life of the battery, recommend for normal operation at 80%: LiIon load Program (3S, 10.8V). For most dives the charged capacity of about 20 Ah is sufficient. If the full capacity of about 25 Ah is needed, the battery can be charged so via LiPo charging program (3S, 11.1V).

5.2 Polarity:

The factory wiring / polarity corresponds to the general standard: the battery pack with the white (or red) wire (+) and the black cable (-). The banana connectors must therefore be according to the electrical loads. Please refer to the manufacturer's
instructions of your charger.

6 Open and close the battery canister:

Our newly developed closure system does not have the traditionally cumbersome external closure clasps.

6.1 Opening:

To open the battery canister, you only need to press in the spring pressure bolt inward. For this example, you can take the end of the e/o cords, or any other pin with max diameter of 2.5mm.
You can pull the POM-head carefully upward / away from the canister. This may be tight due to double O-ring seal. By slightly twisting the lid from the canister the top can always open WITHOUT a tool.
Now you can remove the battery pack from the canister shell.

6.2 Closing the canister:

To close the canister with the POM / top (with battery pack) in the tube.

CAUTION: Great care must be taken that no dirt, hair or other foreign bodies are on the O-rings. This also applies to the inside of the Carbon tanks.

Similarly, the O-rings must be greased regularly. We recommend a silicone grease.

Now turn the lid and the Carbon fiber canister so that spring pin and locking hole are lined up. Then slide the head slowly into the tube until the spring pressure bolt and the tube edge meet. With you finger, depress the spring pin, and slide it into the canister.
Now slide the head all the way into the tube. Slightly rotate the head until the spring bolt is visible in the fuse hole.

The lid and canister should now be securely closed.

7 Charging instructions:

7.1 Charging:

The battery should be used with suitable chargers, otherwise it will immediately void the warranty!

The battery pack has an integrated suppressor with a balancer!

In addition to the charger we offer, there are a variety of other suitable devices. If in doubt, send us all data regarding the charger you are interested in or have, so we confirm the compatibility.

As in section voltage level and charge described, to charge the battery:

1. Remove the battery from the battery tank
2. Carefully separate the POM-head, canister and the battery. These are two 4mm gold contact plug connected.

3. Plug the supplied charging cable
4. Insert the male end of the charging cable into the battery. Also pay attention to the necessarily Polarity: Red is (+), black is (-)!
5. Select the desired charger Loader (without balancer function!):
    1. LiIo (3S, 10.8V) for a 80% charge (recommended as standard setting to extend the life of batteries significantly)
    2. LiPo (3S, 11.1V) for a 100% charge

6. Set the desired charging current. The battery for a maximum charging current of 10A is approved. However, we strongly recommend a charging current of 5A – 6A.

7. Now start the charger.
8. Once the charging cycle is complete, remove the charging cable to the battery to prevent a short circuit.
9. Check the level by pressing the Test button (will light up the colored LED) on the battery.

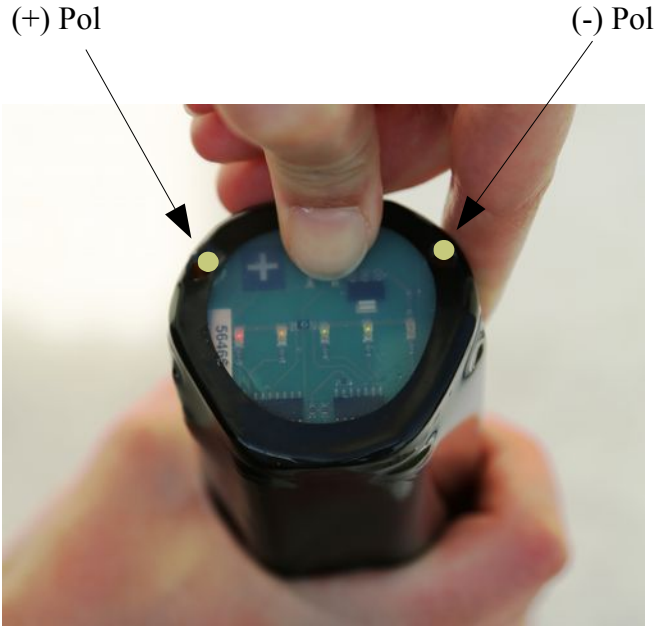

image shows the battery has a 80% state of charge

7.2 Long Term Storage:

If your battery is not going to be used for an extended period (more than 7 days not in use), we recommend about 40% - to 50% state of charge.

Most chargers have suitable programing for "storage". Depending on the charge and capabilities of the charger, this can take hours.

When the state of charge of 40% - 50% is reached, the battery can be stored. For very long storage times, we recommend check that status of the battery every 3-4 months to confirm charge. For this you need only to press the test button. The LED should be between orange or minimum green. If needed, charge the battery for further storage.

8 Usage Statement and Service

8.1 Use and test instructions:

To ensure safe operation and longevity of use, there are some things to consider: Maintain your battery pack according to our guidance

1. The wrapped battery pack must not be opened!
2. Check BEFORE starting the dive the condition of the O-rings.
3. Check the level of the battery pack before you dive.
4. Check BEFORE starting the dive that the canister is properly closed.
5. Check AFTER every dive that no water is penetrated.
6. Check the battery, canister, and top.
7. Disconnect and reinstall your battery pack and top.

In the unlikely event of a Water leak in the head, you can now Water (drip) through the screw-board look. In this case, you should contact us immediately. In the case of an influx of water to the canister, do not continue to use.

1. Check the state of charge AFTER each use.
2. Do not store fully charged the battery for a long time or over-discharged!
3. Do not attach additional fasteners (e.g. hose clamps) to the canister.

8.2 Service:

You should not attempt to repair this product yourself. In case of the need for service please get in touch with us:

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9 Warranty

The battery canister subject to statutory liability 2 years for private end users. Not included are:

- Battery
- Cable
- Switch cap

10 UN, EN, CE and Disposal

The **battery canister** meets the CE criteria. The battery pack meets the UN 38.3 (Transport test for Lithium batteries). The battery pack is below the population register number 21001289 registered.

10.1 Disposal

The disposal is regulated by your local and federal municipalities. Find out your local laws regarding the disposal of Li Ion battery packs.

It is recommended that the battery pack be disposed of separately. For this, the battery must first fully be discharge. This is best done with a lamp. Discharge the battery until the light will not turn on any more. Even if voltage is present from the outputs, we recommend you place adhesive strips to stick on the contacts. The disposal is done through various nationwide recycling programs. Corresponding collection boxes are available at the recycling centers and in supermarkets and hardware stores available. The remaining components of the battery canister discarded through appropriate means.

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