Installation Manual

Hydro Charger Universal

Contents

1. Contents

Art. No. 7105/7106 Hydro Charger Universal 12V or 24V Completely ready for assembly, without mounting bracket. (This must be ordered separately if required.)

- Generator with shaft, 4 m 3-core tinned cable, 2.5 mm².
- Propeller complete with propeller blades, pre-set according to customer specifications. Includes 1 pin, one large and one small washer, and an M10 lock nut.
- Mounting bracket as per order.
- 12V controller with Android app (can also be used without a SIM card!).
- For 24V systems, the Hydro Charger Standard controller is supplied.
- Complete waterproof connector set.
- Operating instructions for the controller are included separately.

2. Required tools / materials

- 17 mm socket wrench for propeller
- 13 mm ring spanner for mounting the respective bracket with counter plate
- 6 mm Allen key for mounting the respective bracket with counter plate
- Pliers
- Small screwdriver for connector assembly
- Battery cables 2x 4 mm², length according to boat installation (from controller to battery)
- Cable ties
- Insulating tape

3. Installation of the system

When installing the system, ensure the propeller is at least 30 cm underwater to maintain a consistent flow. Due to heeling, the bracket should always be mounted as close as possible to the center of the stern, but at least 10-20 cm to the side of the rudder and propeller.

When mounting the bracket, ensure the backing plate (included with every bracket) is well supported internally. If the stern wall is very thin, additional reinforcement is recommended. Please note the position of the locking mechanism!

Propeller installation: Slide the large, 30 mm special washer onto the propeller shaft. Then, insert the propeller‘s drive pin into the corresponding hole so that it protrudes equally on both sides. Slide the propeller onto the washer, ensuring the pin fits precisely into the slot.

Important: The propeller must be seated exactly in the locking pin of the propeller shaft; otherwise, it may come loose and be lost while underway! (Optionally, mark the outside of the propeller with a marker to better determine its position.)

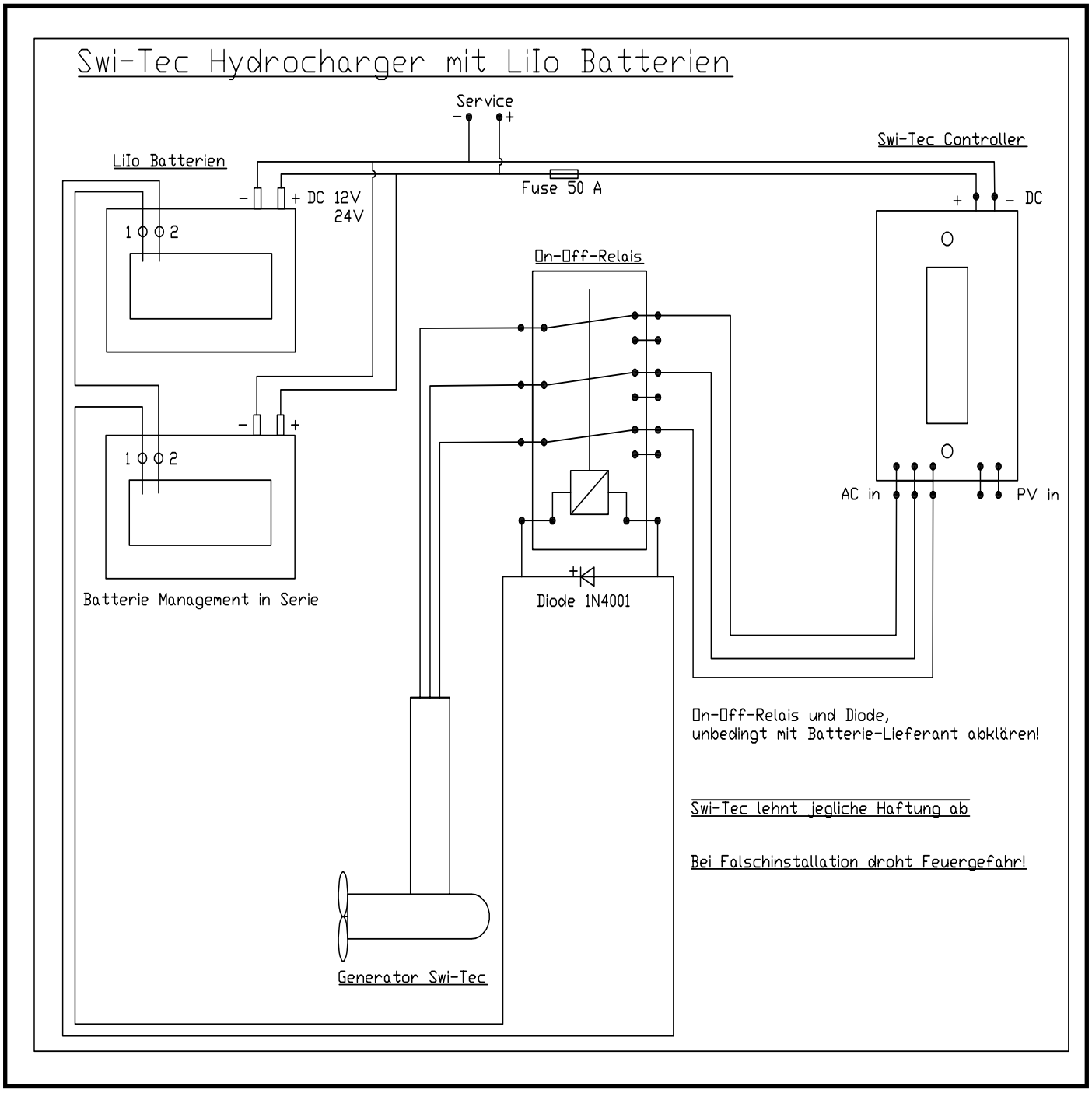
Using a washer and self-locking nut, screw the propeller in place with a 17mm socket wrench (tighten securely!). Then, attach the end cap with the three screws. (See diagram at the end of the instructions.)
Due to the risk of transport damage, we always ship the propeller separately and well-packaged.

4. Assembly of the Hydro Charger Universal

Hang the entire unit in the respective bracket and secure it with the locking bolt. (We recommend securing the locking bolt with a small cord to prevent loss.)
The segment‘s tilt can be adjusted using various holes so that the HYDRO CHARGER lies vertically in the water. (For negative mirror wedges, please inquire about the angle.)

5. Assembly of the Control Unit

It is possible to operate the Hydro Charger with lithium batteries, but always in consultation with the permission of the battery manufacturer! A cut-off relay must always be installed between the Hydro Charger and the controller; otherwise, the controller will be damaged.



The regulator is mounted in the dry cabin near the batteries using four screws. The battery cables should be as short as possible. Connect the positive (+) terminal of the battery device to the positive terminal of the battery using the red cable, and the black cable to the negative (-) terminal. The cables from the regulator to the battery must always be connected directly (do not use an isolating diode!). A 30-amp fuse **MUST** be installed in the red cable.

The 3-pin cable attached to the generator is connected to the regulator at the three corresponding screw terminals labeled „L1/L2/L3“. If the cable passes through the transom, the supplied waterproof connector can be used. Since alternating current is generated, the phase sequence and color of the cables are irrelevant.

It is important that when connecting the regulator, the three cables from the generator are connected first, and only then the battery. The battery must not be too deeply discharged, as the electronics need to switch on the device and then detect the correct voltage of 12/24 volts.

Caution: Reversing the „+“ and „-“ connections will damaged the regulator!
Never operate the generator without the battery cables connected. The regulator will be damaged!!!

6. Programming the controller with the Android app

The separate operating instructions explain how the regulator/controller works and how to operate it.

7. Troubleshooting

The generator is not producing any electricity:

- Insufficient speed; at least 3 knots are required (depending on the propeller pitch setting and the boat‘s average speed).
- The cables were connected incorrectly, causing a short circuit.
- The propeller is bent.
- No battery is connected to the controller.
- The controller or the generator is defective.

If the generator shows insufficient power output:

- Speed too low
- Dirty propeller
- Propeller pitch too high
- Location poorly chosen or foot too short
- Cable cross-section incompatible with installed cable length
- Battery too small, causing the charging voltage to be reached too quickly (batteries should have at least 200Ah)
- Power output varies depending on speed and battery condition

The generator vibrates at the base:

- Dirty propeller
- Propeller blades bent or incorrectly adjusted to the ship‘s speed

Before contacting the manufacturer, please measure the following parameters and inform the manufacturer:

1. Vessel speed
2. How deep in the water is the propeller shaft?
3. Is the generator in a vertical position in the water?
4. Disconnect the generator‘s three cables at the control unit and measure the AC voltage between the phases while turning the propeller by hand. It should be approximately the same between all three phases.
5. If no measuring device is available on board, the generator can be tested by disconnecting the three cables from the regulator. Turn the propeller by hand, holding two cables together at a time. The resistance at the propeller should then be clearly perceptible. If no resistance is felt, repeat the same test as close to the generator as possible to rule out faults in the connection or wiring. If no resistance is felt,

the fault lies directly with the cable or generator.

6. Measure the battery voltage.
7. What devices are powered by the battery?
8. Are solar panels and/or a wind generator with a separate regulator connected to the battery, and what is the open-circuit voltage (volts) and power (watts) of the panels? (Max. 60 VDC!)

8. Warnings

- The generator should be positioned so that the propeller cannot be accidentally touched.
- Never stop the propeller with your hand.
- The HYDRO CHARGER is not a swim ladder.
- Replace fuses only with original fuses of the same capacity. Before replacing a fuse, locate the cause of the fault.
- Always lift the HYDRO CHARGER out of the water when performing any work on it.
- The regulator can get hot. Ensure good ventilation!
- **Never operate the generator connected to the regulator (3 wires) without a battery connected! The regulator will be damaged!!!**

9. Maintenance / Storage

To ensure you enjoy your HYDRO CHARGER UNIVERSAL for a long time, you should check it regularly.

The first check should be on the first day, and then at longer intervals thereafter.

The following points should be noted:

- Check for vibrations.
- The base should always be vertical in the water.
- Does the propeller turn smoothly and without wobbling?
- Are there any damages to the propeller blades?
- Are all screws on the HYDRO CHARGER tight?
- Are all cables and connections in good condition and free of corrosion?
- Is the regulator properly connected to the battery?
- Are there any chafing marks on the cables?

The device requires no special maintenance other than regular cleaning with fresh water. Afterward, allow it to dry and spray it with preservative oil.

If the Hydro Charger is not going to be used for an extended period, we recommend always disassembling it and storing it slightly upright so that the generator unit is lower. (The generator is filled with special oil for cooling, and if it lies upside down for an extended period, a very small amount of oil may leak out at the cable exit due to temperature differences.)

10. Technical specifications 12V system / Mounting brackets

Art. No. 7105 Generator with 12V regulator and mounting bracket of your choice

Generator section:	Geared motor with shaft, propeller, and 12V controller with Android app

	A separate display with a 3m cable is available as an accessory.
Performance range:	Charging from approx. 3 knots, depending on the propeller pitch (factory preset according to the order)
Weight:	Complete including generator, propeller, and stainless steel (V4A) mounting bracket, approx. 8 kg
Controller:	Power: 240W
Batteries:	12 volts, 200Ah or larger
Current consumption:	30-40 mA depending on display brightness (when used with a separate display)
Battery charging voltage:	12V
Max. charging current:	20A
Closing voltage:	13.8V-15V
Dimensions:	90 x 28 x 8 cm (without propeller)
Propeller diameter:	38 cm
Operating environment:	-10 to 50 degrees Celsius, relative humidity Humidity 0-90%

11. Technical specifications 24V system / Mounting brackets

Art. No. 7106 Generator with 24V regulator and mounting bracket of your choice

Generator section:	Geared motor with shaft, propeller, and programmable rectifier
	Charger with digital display and 4 m 3-pole cable
Power range:	Charging from approx. 3 knots, depending on the propeller pitch (factory preset according to order)
Electrical power:	50-500 watts depending on speed
Weight:	Complete including generator, propeller, and stainless steel (V4A) mounting bracket, approx. 8 kg
Propeller diameter:	38 cm
Control unit: Power:	1000W (max. HYDRO CHARGER 600W, solar panel 400W, max. 60 VDC!)
Batteries:	12/24 volts, from 200Ah/100Ah (automatic voltage detection)
Max. battery charging:	16V/32V (adjustable)
Min. battery Charging:	11V/22V
Max. charging current:	40A (20A at 24V)
Max. load current:	15A (7.5A at 24V)
Charging loss:	less than or equal to 45mA
Dimensions:	90 x 28 x 8 cm (without propeller)
Propeller diameter:	38 cm
Operating environment:	-10 to 50 degrees Celsius, relative humidity 0-90%

12. Warranty

SWI-TEC, Neveta Nautica S.L. guarantees that this unit will be free from defects in materials and workmanship that impair the functionality of the HYDRO CHARGER for 24 months or 8,000 nautical miles (whichever comes first) from the date of purchase. Any defects discovered during this period must be reported immediately to SWI-TEC, Neveta Nautica S.L.

SWI-TEC will examine the warranty claim and repair the unit, replacing parts or the entire HYDRO CHARGER as necessary. The place of warranty service is the production facility in

ES-07680 Porto Cristo (Mallorca).

Shipping to and from the manufacturer is not covered by the warranty.

The warranty is valid only if the HYDRO CHARGER has not been used improperly and the assembly and operating instructions have been followed precisely.
Damage caused by force majeure, such as storms, war, etc., is excluded from the warranty.
Otherwise, the terms and conditions of SWI-TEC, Neveta Nautica S.L., apply.

IMPORTANT: We do not accept liability or warranty for damage to the propeller and generator caused by overloading, for example, by objects floating in the water such as ropes, fishing nets, plastic parts, containers, seaweed, etc.!

We wish you much enjoyment and plenty of environmentally friendly energy with our
HYDRO CHARGER UNIVERSAL!

SWI-TEC, Neveta Nautica S.L. Poligono 9, Apt. 51, ES-07680 Port Cristo (Mallorca)
WhatsApp +34 971 82 24 26 (nur Chat) , E-Mail: info@swi-tec.com, www.swi-tec.com

Art. No. 7109

Fixed mountan bracket

Installation: Mark the position on the transom so that the generator is positioned as low as possible. Then drill and screw the bracket in place using the supplied screws and counter plate.

If the hydrogenerator is to be used on the starboard and portboard side, a second, additional bracket can also be ordered as an accessory.

Art. No. 7110

Removable angle bracket for swim platforms or catamarans.

Installation: Screw the bracket to the rear of the swim platform using the included screws and backing plate. The top section can be easily removed at any time using the handle. The base remains securely attached to the platform.

Art. No. 7111

Swivel bracket with lateral stops up to 25° per side and locking mechanism at a 180° vertical position.

Installation: Rotate the locking mechanism (small side lever) and the bracket (possibly in a vise).

The two mounting holes will then be visible. Mark and drill the positions on the stern. Secure the bracket to the stern using the included screws and backing plate.

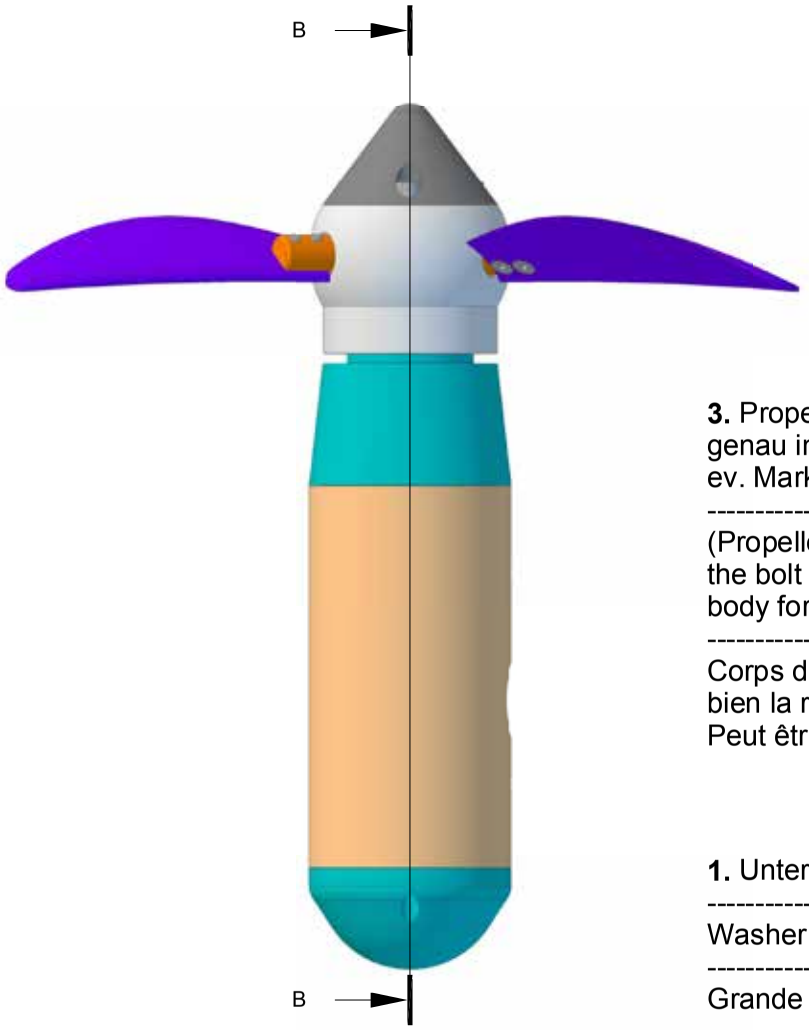
Hang the generator and tighten the M14 nut with the included socket wrench until the generator rotates into the vertical position on its own. (Retighten the nut periodically during your trip!)

To rotate the generator into the vertical position, pull the side lever and use the line at the bottom of the daggerboard to pull the generator upwards. The locking mechanism engages at the 180° position and remains in this position.

To return the generator to the sailing position, press the small lever with the boat hook and let the generator slide downwards.

Further accessories available at www.swi-tec.com

Propeller Montage - Propeller Installation - Installation hélice



6. Deckel mit 3 x M6 anschrauben

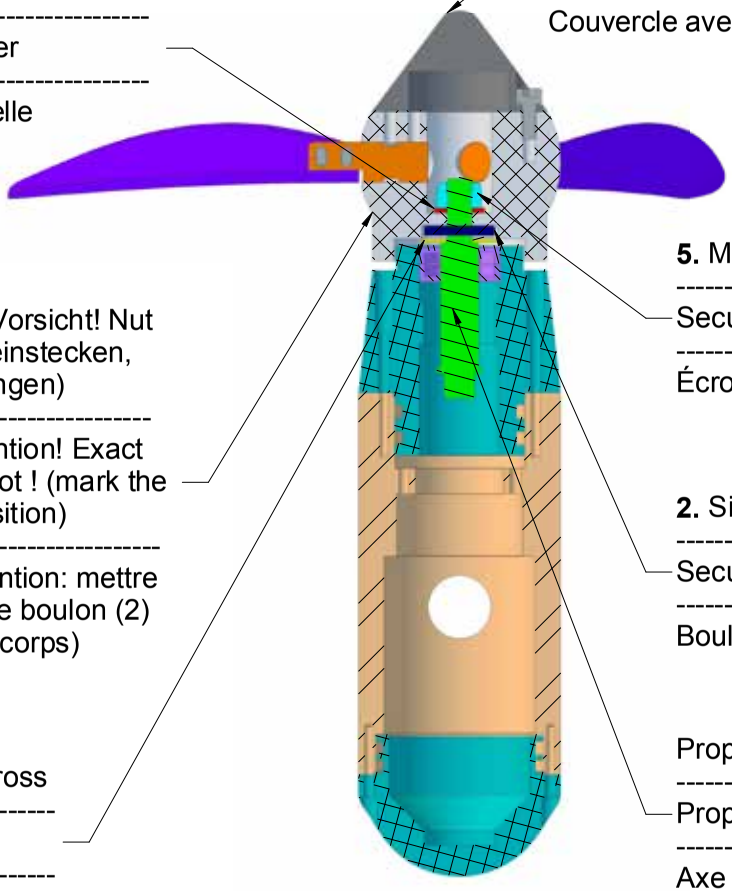
Cap with 3 x M6 screws

Couvercle avec 3 vis x M6

4.Unterlegscheibe

Washer

Rondelle



5. Mutter selbstsichernd

Security-Nut

Écrou de sécurité

3. Propeller Körper (Vorsicht! Nut genau in Bolzen (2) einstecken, ev. Markierung anbringen)

(Propeller body) Attention! Exact the bolt (2) into the slot ! (mark the body for an exact position)

Corps de hélice (Attention: mettre bien la rainure dans le boulon (2) Peut être marquer le corps)

2. Sicherungsbolzen

Security bolt

Boulon de sécurité

1. Unterlegscheibe gross

Washer big

Grande rondelle

Propeller Achse

Propeller axe

Axe de l'hélice

Section B-B

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	Name	Neveta Nautica S.L. (MB)					
	Datum.	02.09.2018			Bestellbezeichnung: SWI-TEC Propeller		Gewicht:xx kg