

Operating instructions for *Dosing Unit SA*



**Please read these instructions carefully.
Non-observance will cause loss of warranty!**

Dear customer,

You have purchased a high-quality product which has been checked several times during production. In case of any malfunction although permanent quality control you should proceed in this manner:

- In case of a claim please contact your retailer immediately
- Please don't try to repair the damage by yourself
- You should use the original package to avoid damages during transport

Please read these instructions carefully to avoid damages and to be able to use the dosing pump unit optimally.

1 Shipment

These parts must be present

- Dosing pump unit with 1, 2, 3 or 4 dosing pumps
- AC/DC adapter
- This manual

2 Connection

Plug the jack of the AC/DC adapter into the DC-connector of the dosing pump unit (12 VDC, polarity: Inside +, outside -) and connect the adapter to the main power supply.

If needed you can plug the control line of a **standard** dosing pump unit (**without controller inside!**) into the western socket. The second dosing pump unit will then be controlled by this device. You must not connect another autarkic dosing pump unit or a *ProfiLux* controller to this port – this will cause damage to both devices!

3 Operation

The integrated controller is able to control up to 8 pumps independently. The pumps of this device are assigned to channels 1 to 4. If an extra standard dosing unit was connected their pumps will be assigned to channels 5 to 8.

The dosing rate is determined by the switch-on duration. One dosing pump pumps approx. 60 ml per minute.

Important hint: While programming it must be assured that the pumps run for max. 15 minutes continuously, the subsequent pause must be at least as long as the previous duty cycle! Otherwise the life time will be reduced.

The dosing pump provides 4 red keys for manual operation of each dosing pump. This feature is useful to remove air for example. Several LEDs indicate the operation state: Green – device is ready; yellow – without function in this device (always off); red – activity of the pumps.

4 Programming

During normal operation you will see time and date as well as the activity state of each pump (a * behind a cipher indicates that this pump is on) on the display.

The device can be operated menu-driven by using these keys:

Arrow keys – Navigation through menus and entering of numbers

◀ – Confirmation of an input or a choice

Esc – Cancel action without saving

After altering a setting you will be asked *Save now?* If you want to save you have to mark Yes (press **arrow left**) and to confirm by pressing ◀.

4.1 Time & date

Here you can set the time and the date. This should be done before adjusting the dosing programs. The clock has a battery back-up and runs for several days in case of a power outage.

4.2 Dosing program

Here you can set the dosing programs for the single pumps. First you have to select the pump which has to be programmed (**arrow up/down**, then ◀).

Now you can adjust the *timemode* – either *Manuel* or *Automatic*.

4.2.1 Automatic

First choose the amount of *dosings per day* (0 to 24), then set the *rate per dosing* (1ml to 1000ml).

Anything else will the controller handle for you. The times of the dosings are calculated automatically; they are spread evenly and the controller tries to avoid overlapping activation times.

4.2.2 Manuel

First choose the amount of *dosings per day* (0 to 12). In difference to the Automatic-program you have now the opportunity to schedule the single dosings regarding time and rate completely free.

Now select if you want to dose in *Interval of days* or at specific *Days of week*.

- If you selected *Interval of days* you have to set *Activation any ... days*. If 1 was set the dosing will be daily, 2 means every 2 days, etc. Subsequent you have to set *In how many days to start*, 0 means from today on.
- If you selected *Days of week* the days at which the dosing should be proceeded can be assigned. A day can be chosen with *arrow up/down*, it can be marked with *arrow right*, and *arrow left* clears the mark. Continue with ◀.

Now you can enter for each dosing time *Switch on* (Start time of dosing) and *Rate* (amount of dosing). Please make sure that the chronological order is correct and no overlappings of the single dosing activities occur.

4.3 Calibrate

Our pumps have an average flow rate of approx. 60 ml/minute. If a pump has a deviation caused by tolerances this can be entered in the menu *Calibration*. First you have to select the pump, and then you can enter the *Flow rate* of this pump.

In order to find out the actual flow rate do this: Activate the pump manually for exactly one minute and measure the amount which has been pumped during this time.

Hint: The set flow rate does NOT change the actual performance of the pump (it will always run with the same speed)! The set flow rate is used by the controller to calculate the on-time based on the desired dosing amount.

4.4 Language

Here you can set the language of the menus.

4.5 Info & Support

Shows information about software version, product and vendor.

4.6 PIN

In this menu you can enter a 4 digit PIN in order to protect the settings. If you enter a PIN different to 0000 the controller will ask for this PIN before changing a setting. If the PIN is 0000 the PIN check will be deactivated.

Hint: If you have forgotten the PIN you can reset it. First disconnect the main power supply, and then connect it again. Press immediately **Esc** and ◀ at the same time until *Delete PIN* is displayed.

4.7 Default settings

This function resets all settings to defaults. All pumps are set to *Automatic* with 0 *Dosings per day* (all pumps are deactivated then).

5 Placement

The pumps are self-priming and always should be located above the container with the liquid which has to be dosed. This avoids an emptying of the container in the case of a leakage. The tube on the intake side should be short. To avoid a backflow the tube must not hang in the aquarium water.

The pump heads can be turned 180°. Press both lockings at the same time and pull the pump off. Turn pump around and put it again carefully onto the motor shaft - don't use force! Check that lockings have snapped in.

Important hint: The dosing pump unit must be protected against splash water and high humidity! (Salt-) Water or high humidity (e.g. occurring nearby the sump) will destroy the device – this voids all warranty claims!

6 Upgrade/Replacement

In the case your dosing pump unit has less than 4 pumps additional pumps can be built in, they are available separately. A subsequent mounting (or replacement of a defective pump) should be done like this:

- Disconnect device from main power supply
- Open enclosure:
First remove the 8 blue covers (4 on the top, 4 on the bottom). In each cover is a small slot in the side. Insert a small and flat screwdriver into this slot. The cover will release; see following photo:



After that the upper half of the housing has to be removed. The housing is only snap-in mounted. The snap-in pins can be unlocked using a round item (approx. 5mm diameter). In the next photo a screwdriver has been used:



We recommend to unlock at least 2 snap-in pins at the same time. When removing carefully the upper part of the enclosure ensure that front plate and rear plate remain in the lower part of the enclosure!

- Now remove carefully dummy plug and glue leftovers (respectively remove old pump – press both lockings – and dismount the motor)
- Insert new motor and mount it with the shipped screws (don't use old screws!). Don't overwind the threads!
- Plug the connector of the motor to the appropriate socket of the PCB (labeled with *Pump1* to *Pump4*)
- Close device
- Press pump head carefully onto the motor shaft, the shaft should slide smoothly into the coils – don't use force! Make sure lockings snapped in safely.

7 Maintenance

The pumps don't need much maintenance. It is recommended to clean the inside of the pumps sometimes from dust or other contamination. **The pump must never be lubricated in any way!**

8 Warranty

GHL GmbH & Co. KG grants a warranty of 24 month beginning with the date of purchase for all processing or material defects. The warranty doesn't cover wear parts like pump and motor. The original bill is your warranty certificate.

9 Disclaimer of liability

The manufacturer excludes liability for any (consequential) damages caused by the use of this device.

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