Operation manual
for the

AQUA MEDIC

Reefdoser

Dosing pump controller with 2 – 4 dosing pumps.

The reefdoser is deigned to controll the 2 – 4 connected dosing pumps independently in a very broad range. The unit uis the optiumum solution for dosing different types of trace minerals or calcium into marine aquariums or iron and other fertilisers into freshwater aquariums.

Short instruction:

1. switch on, also after power failure:	press „Adj“ and „Set“ simultanously
2. switch into program mode and channel selection	press and hold „Set“ and „Enter“ simultanously until the desired channel is displayed.
3. Adjust cycle time thereafter 4. adjust on -ime	press „Adj“ to adjust the deired numbers press „Set“ to switch to the next number press „Enter“ to save the value

1. Features

The Reefdoser comprises an electronic control panel and 2 – 4 dosing pumps, SP 1500.
It is availabe in 3 versions:

Type	Number of dosing pumps
Reefdoser twin, RD2	2
Reefdoser triple, RD3	3
Reefdoser quadro, RD4	4

Every dosing pump has a capacity up to 1500 ml/hr

2. Programming the Reefdoser

The Reefdoser allows to control up to 4 dosing pumps independently. The pumps are switched on and off in programmable intervals. The Reefdoser does not work with real time, but with intervals. For every channel (=dosing pump) 2 different intervals have to be programmed:
The **cycle time** and the **On- time.** The cycle time is the total duration of one interval (sum of on time and off-time).

Example: Every 12 hours trace elements shall be dosed for a period of 10 minutes. The cycle time is then 12 hours, the On time 10 minutes. After dosing for 10 minutes, the unit switches off for 11 hrs and 50 minutes..

Programming:

1. switch on: Insert the mains plug. Make sure, that the voltage of your mains is the same as on indicated on the label at the back side of the unit. When the unit is connected to the power supply, the display shows „duty“ and flashes. Press the buttons „Adj“ and „Set“ simultanously, to get into the working mode. If any intervals are already programmed, the pumps start now working.

2. switch into program mode: To reach reach the program mode, press the buttons „Set“ and „Enter“ simultanously. As long, as you keep the to buttons pressed down, the display shows the channel, that can be programmed „CH1“ to „CH4“. After 5 seconds, the display switched to the next channel . If the number of the channel is shown, that shall be programmed, the 2 buttons (Set and Enter) are released.

3. Programming of the **cycle- time**: If the program mode is reached, the cycle time can be adjusted. After you release the buttons Set and Enter (see above), the display shows :
   __ __ . __ __ . These 4 numbers are the hours and the minutes. Each number is set individually. Press the „Adj“ button several times, until you have reached the desired value. This value is saved by pressing the „Set“ button and the cursor jumps to the next number. In this way, all 4 numbers can be programmed. The cycle time can be varied from 99 hrs 59 minutes to 1 minute only.
   If all 4 numbers of the cycle time are programmed, you can save them by pressing the „Enter“ button.

4. Programming of the **on-time**: After the cycle time has been saved, the display shows the on-time. The on-time has 6 numbers, however only 4 of them can be shown simultanously;
   __ __.__ __. The first 4 num,bers are the hours and minutes. They are programmed in the same way as the cycle time: Press the „Adj“ button, until the desired value is reached and confirm by pressing „set“. The cursor jumps to the next number. If all 4 numbers (hours and minutes) are programmed, the display changes and shows minutes and seconds. As the minutes are already programmed, the cursor jumps direcly to the 3rd numer, the seconds. The seconds are programmed („adj“ and confirmed by „set“). The values are saved by pressing the button „Enter“. The On time has always to be shorter,than the cycle time. If the On-timt iset by mistake longer, than the cycle time, the display will show error „err“.
   The channal is now ready porgrammed. After opressing the „Enter“ button, the Reefdoser beginns his work and switches on the pump (for the on- time)

5. programming the other channels: To program the next channel, press and hold again the 2 buttons „Set“ and „Enter“ simultanously. Now channel 1 „CH1“ is shown on the display. After approx. 5 sec, the display switches to „CH2“, ect. As soon, as the desired channel is displayed, both buttons are released and the channel can be programmed as described for CH1.

6. Power failure and synchronisation. All programmed data are saved independent of the power supply. If the unit is switched on again after a power failure or after removal of the power plug, it will not start automatically working. The displays shows „duty“ and flshes. It strts only sfter pressing the buttons „Adj“ and „Set“ simultanously (see above under 1.) The channels work then synchronously, this means they all start with their on- time.

The Channels, that are wswitched on are indicated by their green LED.

3. Mounting of the dosing pumps

The SP 1500 is a peristaltic pump in which liquid is transported by repeatedly kneading the pump hose. It can be used wherever small amounts of liquid have to be pumped.
In the aquarium, the pump can be used for two purposes:

- as feed pump for low flow reactors, like **Nitratereductors, Calciumreactors** or **Phosphate Filters**.
- as a dosing pump for fertilisers in fresh water aquariums and for trace elements, calcium and bicarbonates in salt water aquariums.

The dosing pump is supplied with a long lasting synchronous motor and the pump hose is made of Santoprene®, a specially developed material resistant to many chemicals and with a very long life – typically in excess of 3 million compressions.

IMPORTANT NOTE:
- The pump must be operated on the correct voltage (see type label)

Technical Data

Model	**Dosing pump SP 1500**
Power supply	230 v / 50 Hz
Power consumption	4.5 watts
Maximum flow	1,5 litres/hour - 25 ml/min – 0.4 gph
Connections	6/4 mm hose (¼")
Motor	synchronous
Speed	10 rpm
Motor life	>10,000hrs
Pump hose life	>3 Million turns
Continuous running possible	Yes

Connections

The pump is typically connected with aquarium air hose (6/4 mm), ¼". However it should be ascertained that the hose is suitable for the chemical charachteristics of the liquid being pumped.

Control

The synchronous motor of the pump operates at a fixed speed of 10 rpm. This cannot be changed. If smaller amounts of water are to be dosed or a smaller flow rate is required, the SP 3000 can be switched on and off for varying periods of times. For exact dosing a digital timer switch, programmable in minutes, should be used.

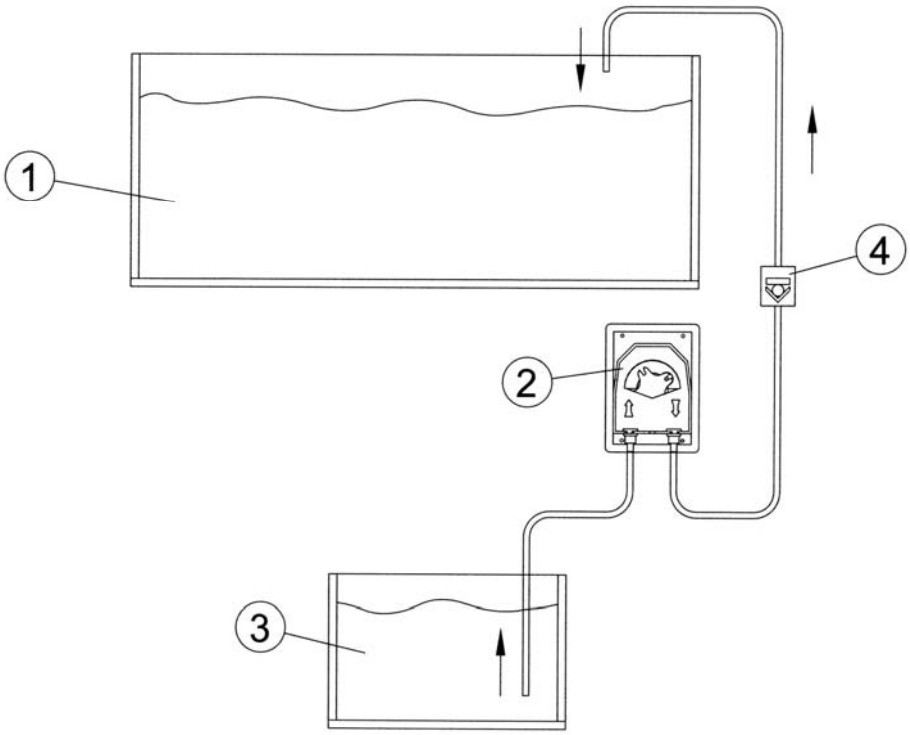
Installation

- The pump may only be operated in the dry, it is not designed for submersed use. It should be securely mounted using the keyhole slots provided in a dry place.

- The pump is self priming and should be mounted above the water level of the liquid storage tank (see fig 1).

- The outlet should always be positioned above the aquarium or sump. If the pump stops with the drive axle in the horizontal position then the pump will not act as a non return valve. The air gap between the outlet hose and water prevents aquarium water being syphoned back into the liquid storage tank (see fig 2).

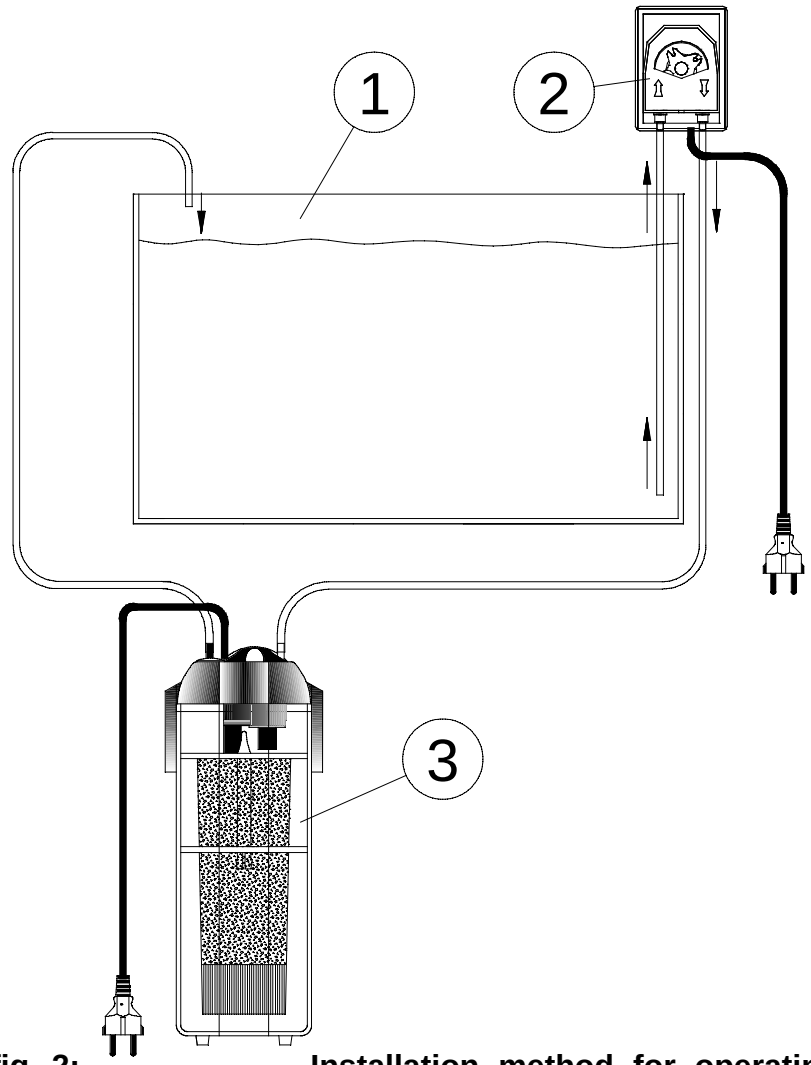
- If small amounts of water need to be precisely dosed then a non return valve should be placed in the outlet hose of the pump. This prevents the pressure tube emptying and ensures that the same volume is dosed during each operating cycle (see fig 1).



1. Receiving vessel (Aquai sump etc)
2. Dosing pump SP 3000
3. Dispensing Vessel (Res liquid supplement conta
4. Non return valve

fig 1: Installation method for dosing from a dispensing vessel, including a non return valve.

The non return valve will prevent water flowing back down the pressure hose. In any case
the outlet should always be positioned above the surface level of the receiving vessel. This prevents the storage tank syphoning out should the pump stop with the drive axle in the horizontal position..



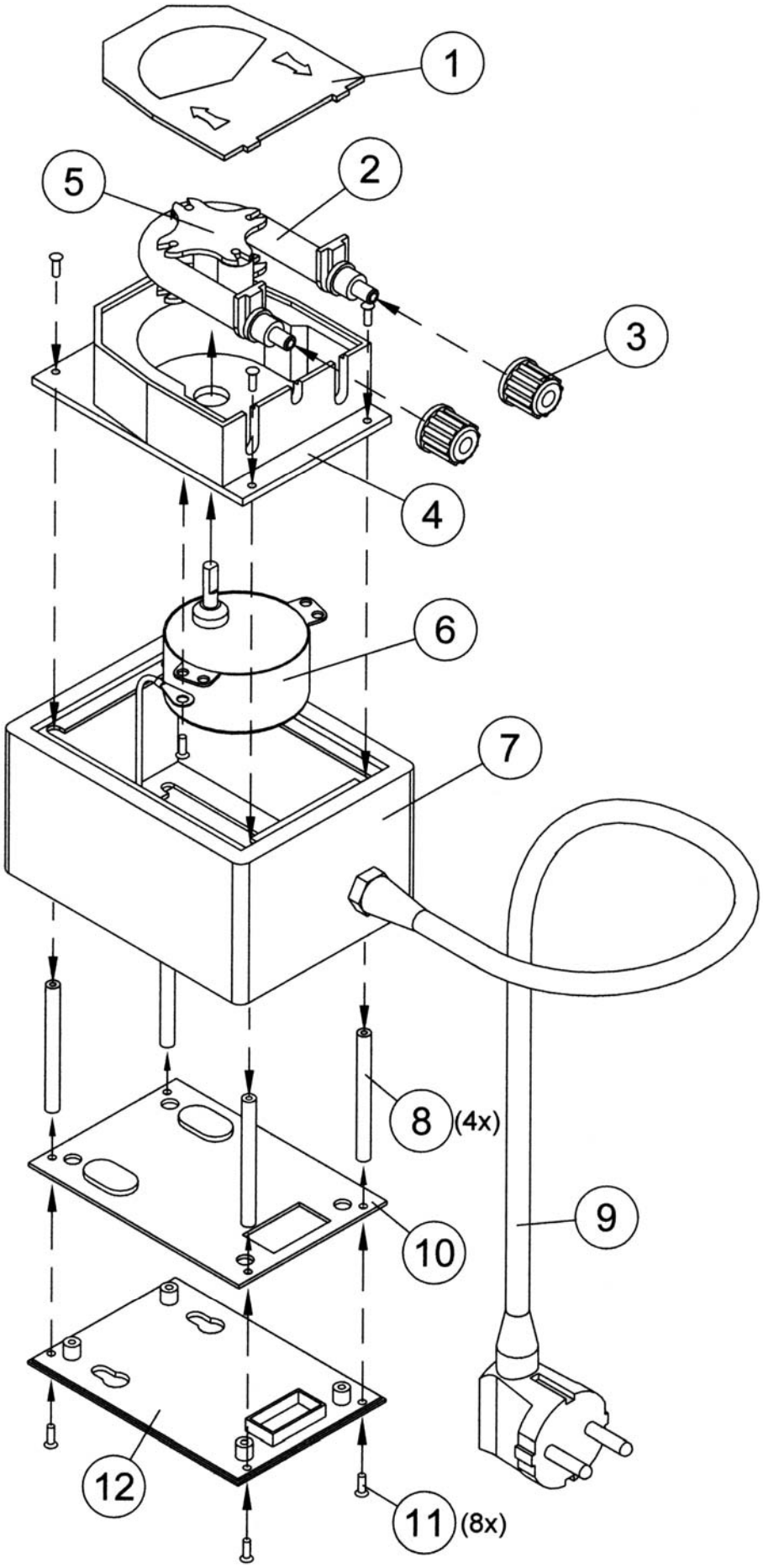
1. Aquarium
2. Dosing pump SP 3000
3. Calcium / Nitrate Reactor

fig 2: Installation method for operating a Calcium reactor or Nitratereductor with the SP 1500.

The pump should be mounted above the aquarium or sump to prevent any problems that may arise should the pump hose leak. The outlet should always be positioned above the surface level of the aquarium

6. Parts List

Dosing pump SP 1500



1. cover
2. pump hose with fittings
3. gland nut
4. pump housing
5. drive wheel with rollers
6. motor
7. housing
8. brass pillar (4)
9. power cable
10. protection plate
11. screw (8)
12. back plate

7. Maintenance

The pump hose and the motor are consumable and have to be maintained and changed regularly.

Pump hose: The pump hose has a lifetime of approx. 3 million compressions and after this useage must be replaced. If the pump is operated continously the hose should be changed every 3 – 4 months. We recommend using only an original Aqua Medic spare pump hose assembly which is supplied complete with fittings.

Grease**:** Before the hose is installed it has to be greased. The pump will only operate properly if the hose is effectively greased.

Heat: During continous operation the motor may heat up as high as 70°C. This is normal and has no effect on performance or the life. However too little grease on the pump hose may cause malfunction of the motor and overheating.

Drive wheel with rollers: The plastic driving wheel and the rollers are designed for a long life. Nevertheless it may become necessary to change the assembly which should be undertaken using the following procedure:
Remove the pump hose by pushing the fittings out of the housing. The drive wheel can now be pulled off the shaft as it is a pressed fitting.

Motor: The motor has a lifetime of >10,000 hours. To replace the motor remove the drive wheel assembly. Undo the 4 screws in the backplate. Now remove the backplate and protection plate. Undo the power cable connection from the connector block and remove the 2 screws securing the motor to the housing.
To fit the new motor reverse the above process.

Safety instructions

The pump may only be used indoors. Before undertaking any work on the pump, disconnect the power plug from the mains.

8. Warranty

Should any defect in material or workmanship be found within twenty four months of the date of purchase AQUA MEDIC undertakes to repair or, at our option, replace the defective part free of charge – always provided the product has been installed correctly, is used for the purpose that was intended by us, is used in accordance with the operating instructions and is returned to us carriage paid. The warranty term is not applicable on the all consumable products.
Proof of Purchase is required by presentation of an original invoice or receipt indicating the dealer's name, the model number and date of purchase, or a Guarantee Card if appropriate. This warranty may not apply if any model or production number has been altered, deleted or removed, unauthorised persons or organisations have executed repairs, modifications or alterations, or damage is caused by accident, misuse or neglect.
We regret we are unable to accept any liability for any consequential loss.
Please note that the product is not defective under the terms of this Warranty where the product, or any of its component parts, was not originally designed and / or manufactured for the market in which it is used.
These statements do not affect your statutory rights as a customer.

If your AQUA MEDIC product does not appear to be working correctly or appears to be defective please contact your dealer in the first instance.
Before calling your dealer please ensure you have read and understood the operating instructions. If you have any questions your dealer cannot answer please contact us

Our policy is one of continual technical improvement and we reserve the right to modify and adjust the specification of our products without prior notification

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