

# Nano Doser 1

## User Manual

**saltwater conversion**

# Nano Doser 1 User Manual

These instructions set out the steps required to set up and maintain your **Nano Doser 1**.

This manual must be read prior to using the **Nano Doser 1** to ensure correct setup procedures are followed.

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The written and graphic product descriptions in this manual are correct at the time of printing.

This manual is updated as required. Visit the [Saltwater-Conversion website](http://www.saltwater-conversion.com.au) to access the latest version. This pump is NOT to be used as a medical device under any circumstances.



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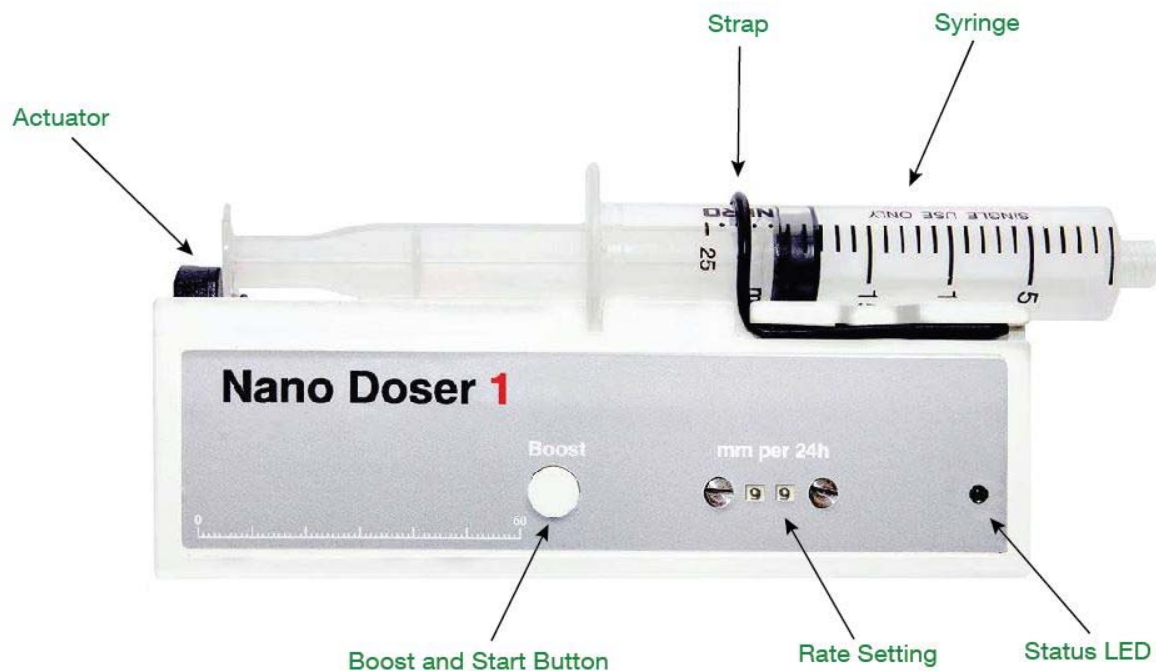
## **Section 1: Introduction**

The Nano Doser 1 takes ultra-precision medical dosing technology and makes it available to aquarium hobbyists for the first time. The clever design is capable of precisely administering tiny doses as small as 0.07mL per day for periods of up to two months at a time. This makes it ideal for substances that have typically been administered by hand due to their precise dosing requirements, such as vodka and ZEOvit® products. It also opens the way for dosing substances like vodka in smaller tanks where precision is a must.

### **What's in the box?**

- Nano Doser 1 Pump
- 3mL Syringe
- 5mL Syringe
- 10mL Syringe
- 30mL Syringe
- High Precision PTFE Microbore Dosing Line with Locking Connectors (1.6m / 63" 300µm ID)
- High Precision 190µm Dosing Nozzle with Locking Connector

## Nano Doser 1 at a Glance



## Other equipment you may need to supply

### Dosing tube holder

A dosing tube holder will help keep your dosing lines securely held above the surface of the water.

### Chiller (mini fridge)

Some substances may require cooling to prevent spoilage. A USB can cooler can commonly be found on online auction sites and be used to cool the pump plus its contents. The pump should never be cooled below 10°C (50°F).

### Battery

A standard 9 volt battery is required and should be easy to source locally. Unfortunately due to safety concerns, transport companies no longer allow shipping of batteries in many regions so we are unable to include it in the kit.



**WARNING:** Before use, please read all operating instructions and our liability disclaimer on page 10

## Section 2: Setting up the Nano Doser 1

This chapter sets out the steps to set up the Marine-Pac 3.

To start, remove all the components from the box, and unwrap.

Step 1: Calculate pump setting

Step 2: Install syringe into pump

Step 3: Install dosing line

Step 4: Install dosing nozzle

Step 5: Fill pump

Step 6: Start pump

### Step 1: Fitting the battery

Use a brand new standard 9v battery

1. Take off the battery cover
2. Push in the battery. The label in the battery compartment shows which way round to put it. Accidentally putting it in the wrong way round will not do any harm.
3. Slide the battery cover back on the pump.
4. The alarm will sound for about 15 seconds and fade away after the battery is fitted. This alarm sound is to let you know the unit is now operational and the battery has charge.

### Step 2: Calculate the pump settings

1. Select one of the included syringes
  - 3mL Syringe (0.05mL - 0.2mL per day dosing)
  - 5mL Syringe (0.083mL - 0.5mL per day dosing)
  - 10mL Syringe (0.16mL - 1mL per day dosing)
  - 30mL Syringe (0.5mL - 3mL per day dosing)
2. Use the table on the following page combined with our online calculator tool found here:  
<http://saltwater-conversion.com/pages/nano-doser-calculator>

Enter the capacity (mL) and length (mm) for the syringe you have selected into the calculator.

Please note this table applies only to the syringes included. Other brands may vary in length and should be measured.

Select the Syringe type with the minimum dose closest to the amount you plan to dose. For example, if your minimum dose is to be 0.1 mL then you'll need the 3mL Syringe as it is capable of dosing as low as 0.07mL. If your minimum dose requirements are a little higher, say anywhere from 0.13mL – 0.189mL then go up to the next size being the 5mL Syringe as that will be the dose range best matching.

Syringe Type	Length	Minimum dose
3mL	45mm	0.07mL
5mL	38mm	0.13mL
10mL	52mm	0.19mL
20mL	65mm	0.3mL
30mL	71mm	0.42mL

Using the included screwdriver dial in the Millimetres (mm) output on the pump the same as calculator tool shows.

**IMPORTANT:** When calculating a dose for the first time ALWAYS check the pump is running at the expected rate and administering the correct dose for 24 before dosing into the aquarium.

### Step 3: Attach the dosing line

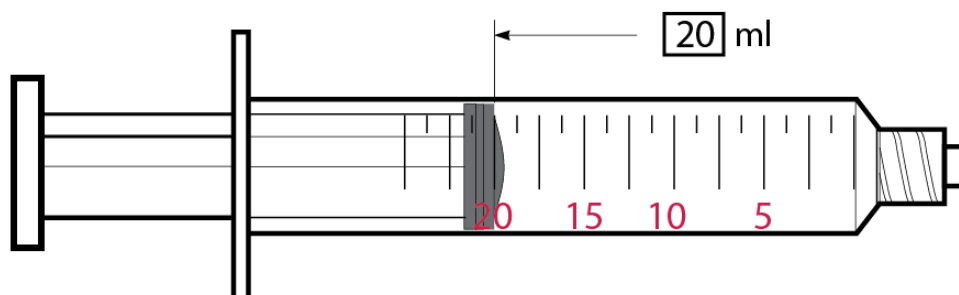
Attach the dosing line to the Syringe you selected. The connector on the dosing line will lock onto the tip of the Syringe by turning it clockwise.

### Step 4: Fill the Syringe

With your thumb, push the plunger of the Syringe all the way to the end to squeeze out the air. Then place the tip of the dosing line into the solution you wish to dose and slowly and gently draw back with the Syringe to fill it. This will take some time as the solution is being drawn through the fine dosing line. Do not force the Syringe as it may break. Draw back slightly past the capacity of the syringe. eg on a 30mL Syringe draw back only a little past the 30mL mark

## Step 5: Fit the dosing tip

Install the dosing tip on to the end of the dosing line and push slightly until the plunger is at the capacity marker for the Syringe eg: 20mL Syringe should have the plunger at the 20mL mark exactly. Note how the end of the plunger is the following diagram.



Note: The dosing line and nozzle is not shown in his diagram

## Step 6: Install the Syringe into the pump

1. Put the syringe on top of the pump, with its barrel in the V-shaped recess.
2. Move the actuator up to the syringe plunger. This is done by pressing and holding in the white button on the side, and sliding it along. The push-button on the plunger of the syringe must be fitted in the slot in the actuator.
3. Put the rubber strap over the top of the syringe barrel and pull it tight. Hook and then press it into the groove in the side of the case.

## Step 7: Start the pump running

1. Press and hold down the Boost button. The motor will turn and stop after 10 seconds. The alarm will sound.
2. Release the boost button to start the pump. The indicator lamp will begin to flash once ever 25 seconds to indicate the pump is now running.

### Top-up dose

To administer a small boost of the substance you are dosing the BOOST button can be pressed. The syringe plunger moves forwards with each beep. The calculator will tell you how much is dispensed per beep. <http://saltwater-conversion.com/pages/nano-doser-calculator>

### Stopping the Syringe Driver when the syringe is empty,

The pump will stop automatically and the alarm will sound for about 15 seconds. There is no OFF switch to stop the Syringe Driver before the syringe is empty. To stop it, move the rate switches to 00 - the indicator lamp will still flash, or alternatively just remove the battery from the pump.



## Section 3: Troubleshooting

### Alarms

The Syringe Driver will make a beep noise lasting about 15 seconds:

- When the syringe is empty
- When you insert a battery
- When the BOOST button is pressed for more than 10 seconds
- When the pump has stopped. (blocked dosing line or nozzle)

The Indicator Lamp will stop flashing:

- When the pump has stopped and switched off
- When the battery needs replacing

The following table will enable a user to diagnose basic problems and implement a solution that may enable the device to resume operation.

### Symptom checklist

Symptom	Check for the following:
Pump will not start	<ul style="list-style-type: none"><li>• Boost button has not been pressed</li><li>• Battery is flat (check another even if the battery is new)</li></ul>
Pump has stopped before emptying syringe	<ul style="list-style-type: none"><li>• Blocked Dosing Line</li><li>• Blocked Dosing Nozzle</li><li>• Battery is flat</li></ul>

## Disclaimer of liability, and warranty information

### 2 Year Warranty

#### What is covered

This warranty covers any defects in materials or workmanship with the product, with the exceptions stated below.

#### How long coverage lasts

This warranty runs for 24 months. The warranty starts from date of shipping.

#### What is not covered

This warranty does not cover associated damage to the aquarium, any equipment or its inhabitants, or damage to property. Syringes are not covered under this warranty.

#### Warranty shipping costs

The customer shall be responsible for shipping costs associated with returning this product to Saltwater Conversion for warranty should it be required.

#### How to get Service

Contact Saltwater Conversion at [info@saltwater-conversion.com](mailto:info@saltwater-conversion.com). A service representative will be in touch and let you know the necessary action to correct problems covered by this warranty. In the event your product is faulty during the warranty period, please contact us and we will offer a replacement or parts for the faulty item.

#### How State Law applies

This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

### IMPORTANT: Disclaimer and Accepted Risks

Please read carefully.

This pump is NOT to be used as a medical device under any circumstances.

Saltwater Conversion assumes no liability for any and all associated damages including but not limited to damage to property to the tank and its inhabitants, flooding, water damage etc.

As with all aquarium products, the risk of malfunction and damage to your tank and livestock is very real. This risk is increased further when using when dosing highly concentrated supplements. This product should only be used by experienced users and the pump should always be test run before being connected to the tank. NEVER assume the calculator tool to be correct all the time and TEST that the pump is running at the correct rate BEFORE connecting it to your tank. This pump should only be used in a situation where the customer understands and accepts the risk that may occur in the event of a fault or miscalculation or error in the calculator tool. The extent of the warranty provides for replacement of parts supplied by Saltwater Conversion only

By using this product you accept the risks associated with it. Otherwise please return the product at the time of purchase for a full refund (excluding return shipping charges).