FZ-ATO

USER MANUAL

Aquarium Water Auto Top Off System

HIG
MID
LOW

A.T.O. Pause Lock

Freq. Buzzer

AUTO TOP OFF

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CONTENTS

Key Words Definition

ATO or A.T.O.: The Auto Top Off device

Initialization:
Press the three buttons("A.T.O.", "Pause", "LOCK") simultaneously for 5 seconds, hear a "beep", the device starts the initialization.

SPT:
When the device is initialized, it will calculate the SPT (single pumping time) according to the size of the tank.

LOW: LOW light or LOW light level

MID: MID light or MID light level

HIG: HIG light or HIG light level

Chapter I : Safety Instructions

Please read the following safety instructions thoroughly before using this device.
No read or no follow safety instructions will lead to severe damages or accidents.

- The power adapter and controller is not waterproof, please keep it dry, do not put it in water.
- Remove dust, dirt, oils or grease with a dry, clean cloth.
- Do not move forward or attach the device, if oil, grease, or damage is present!
- Do not disassemble the device.
- Reset the device when change to different sizes' tanks, it will calculate the SPT for new tank.
- Only suitable for TRANSPARENT glass or acrylic RIMLESS tanks.
  Non-TRANSPARENT tanks will block the sensors that will lead to overpump accidents.

Chapter II: Installation Requests

- It is recommended to install on a rimless tank. If a rimed tank is used, the tank frame limits the installation position of the device, or the water level cannot be monitored exactly. Then the water level is about 2cm away from the upper edge, which may not meet the user's expectation.
- Suitable for calm water surface or water surface with small fluctuation.
- The thickness of the tank should less than 12mm.

The device ensures the water level to be maintained between MID and LOW through three sensors and an intelligent algorithm of SPT (single pumping time).

The working flow chart as follow:

· When the water level is lower than LOW level, the LOW light will turn off and the water pump will start the 1st pumping for a SPT period.

· If the water level reaches the MID or HIG level, the pump will stop pumping water.

· If the 1st SPT period pumping is completed and the water level has not reached the LOW level, the device will check the LOW light or start the 2nd pumping.

· If the water level fails to reach the LOW level after two pumping, the alarm will be triggered.
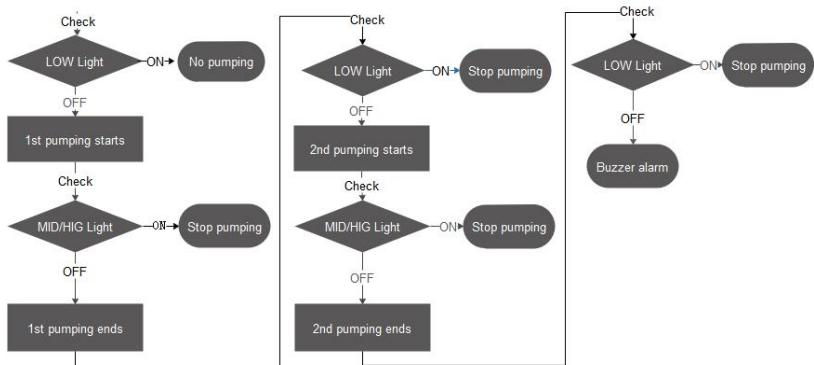
Chapter IV: Precautions

・ The water-outlet should be higher than the water surface to prevent siphoning. (Users can prepare their own anti-siphon valve according to their needs).
・ The installation location of the controller must be clean.
・ The internal magnetic module must be clean to avoid optical sensor malfunction of the external controller module.

① Power adapter
② ATO controller
③ Pump
④ Clamp
⑤ Tube
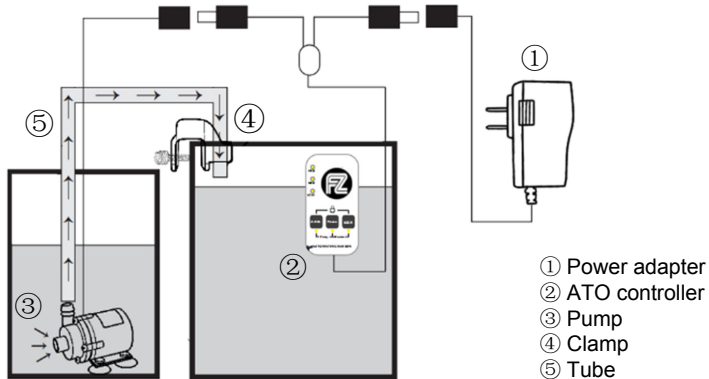
Installation steps:
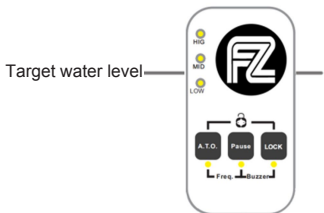
Target water level

Step 1:
Install the ATO controller on the tank wall and align the target water level between "LOW" and "MID".
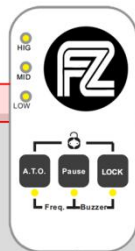
Step 2:
Manually fill the water close to the "Low". Neither exceed the middle line of the "LOW" and "MID", nor lower more than 1cm of the LOW light.
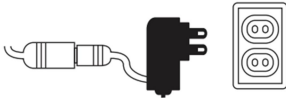
Note:
The initial water level will affect the calculation of the SPT period.

Not exceed the middle line of the "LOW" and "MID"

Not lower more than 1cm of the low light

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Step 3:

Connect the pump tube with the water inlet tube, and insert power adapter with socket, according to above installation steps.

Step 4:

Press the three buttons("A.T.O.", "Pause", "LOCK") simultaneously for 5 seconds, hear a "beep", the device starts the initialization, drive the water pump to do the initial pumping, till the water level reaches "MID" and calculate the SPT period.

The algorithm of SPT period works as follow:

• If the initial water level is lower than the "LOW" level, the STP period is equal to the 50% period from the start of pumping until the water level reaches the "MID" level.

• If the initial water level is between "LOW" and "MID", the SPT period is equal to the period from the start of pumping until the water level reaches the "MID" level.

After completing the above initialization, the device can automatically monitor the water level. When the water level is lower than "LOW", the water pump will be started. According to the SPT algorithm, the water level will be maintained between "LOW" and "MID" automatically.

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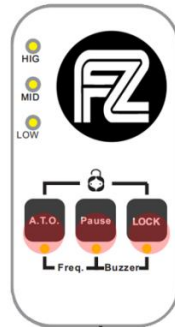
Chapter VI: Advanced Settings

One-key manual water pumping:
Press the "ATO" button, the pump can be started to pump water in a SPT period (When the water reaches the MID level, it will automatically stop).

One-key manual pause:
Press the "Pause" button, the ATO automatic pumping function will be temporarily stopped, the pump will not be started when the water is lower than the "LOW" level. It is usually used when changing water or cleaning tanks.

High water level monitor:
If the water reaches the "HIG" level and keeps the water level above "HIG" for more than 20 minutes, the buzzer alarm will be triggered.(No alarm in less than 20 minutes is to prevent from triggering the "HIG" level when feeding the fish)

Note:
This function can be turned off. After it is turned off, there will be no buzzer alarm when the water reaches the "HIG" level, but the pump will stop pumping according to the SPT algorithm.
Please refer to the Chapter VII: Buzzer Modes and Settings

Child lock function:
Press the "ATO" and "LOCK" buttons simultaneously for 5 seconds, the device will turn on/off the child lock function after the sound "beep". When the child lock function is turned on, the below 3 button lights ("LOW", "MID","HIG")will turn off, the One-key manual water pumping and the One-key manual pause functions will turn off.

Chapter VII: Buzzer Modes and Settings

Buzzer modes:

· Mode **A:** The buzzer turns on, after the "di" sound.

· Mode **B:** The buzzer turns off, after the "di di" sound.

· Mode **C:** The buzzer turns on, but the HIG level monitoring alarm turn off (See the Chapter VI: Advanced Settings -High water level monitor), after the "dididi" sound.

Settings:

· Start setting: press "Pause" and "LOCK" simultaneously for 3 seconds, you will hear a "beep", and then you hear three sound periods: "di", "didi" and "dididi".

· Select mode: after the "di" sound, press the "Pause" key to select mode A; after the "di di" sound, press the "Pause" key to select mode B; after the "di di di" sound, press "Pause" "Button to select mode C.

DO NOT RECOMMEND NEW USERS TO TURN OFF THE BUZZER!

OR THERE IS NO BUZZER ALARM FOR FOLLOWING ALARM SITUATIONS!

Chapter VII: Alarm Situations

If the buzzer alarm turn off, there is only "LOW", "MID", "HIG" lights flash, no buzzer alarm.

The reasons of failure will be the following situations:

Failure	Situation	Reasons
Pumping failure	· Long beep · ATO light flashes slowly · PAUSE light flashes quickly	· The water pump is broken. · The water level drops too much artificially, and the two SPT pumping time still cannot reach the LOW level. · The water pipe is bent and cannot pump the fish tank with water.
Sensor failure	· Buzzer alarm rings every 0.5second · The HIG light flashes every 0.5second · LOW light does not turn on	· The sensor in the tank is dirty, blocked by debris of plants, mud or other stuff. · The water surface or tank wall is dirty.
Device failure	· Long beep for three seconds, beep twice	· Controller need be restarted or exchanged

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