

User's Manual

Introduction

"Strong water movement throughout the tank can be achieved by... 'powerhead' pumps whose purpose is only to move water actively about the tank. Many corals and other organism in reef systems do better if exposed to water movement that simulates water surge on the reef. Water that moves first in one direction and then the other, washes and stimulates these organisms in a natural manner. Surge systems in large reef tanks should not be operated continuously. A period of quiet currents during the night hours and/or part of the day is typical of the natural environment." Martin A. Moe, Jr. The Marine Aquarium Reference, Green Turtle Publications □ 1989 (page 75)

The TSUNAMI provides this type of water movement by switching the AC power (up to 6 Amps total) to powerhead pumps based on the time settings of the Timing Control Knobs. P1 & P2 outlets alternate, that is, when one is on the other is off. P3 outlet is independent of P1 & P2 and has its own Timing Control Knob. Times are adjustable from approximately 1 minute to approximately 40 minutes. When the Feed push-button is depressed, pumps are turned off for a user controlled period of between approximately 1 minute and 40 minutes. There are two available Feed modes. A selector switch on the rear panel allows selection of either all pumps off, or only the main pump off during feeding.

When the Night Mode sensor is used, the pumps are placed in a "gentle mode" when the lights go off, creating less turbulence, thus simulating the calming of a reef at night.

Precautions

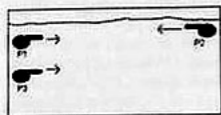
The TSUNAMI is designed specifically for use with aquarium pumps. A total of load of up to 6.0 Amps can be connected. Starting currents for aquarium pumps are typically greater than the nameplate rating of the pump motor. Therefore, Do not connect any pump with a nameplate rating of over 3 Amps (this is a very large pump). Whenever using electrical devices in the aquarium, use a tank grounding device (available from your aquarium retailer).

Installation (refer to the rear panel layout on the back cover of this manual)

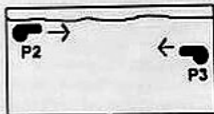
Each application is different. Some experimentation is necessary to achieve optimum results. This section provides guidance and useful tips for installation of the TSUNAMI and your powerhead pumps.

Place powerheads so as to achieve maximum variety of flow patterns and turbulence. Usually this means placing P1 and P2 powerheads on opposite ends of the tank. Where only two powerheads are used, the P2 and P3 outlets can be used to provide a more random pattern. Most users direct the outlets of the powerheads to open areas of the tank. Try directing the outlets at an angle toward the middle front of the tank.

The following diagrams depict two suggested setups:



Three Pump Application



Two Pump Application

Plug main pump and powerhead pumps into the appropriate outlets of the TSUNAMI (See the rear panel layout diagram on the last page of this manual). When possible, install a "drip loop" in each cord where the cord drops below the TSUNAMI then rises to the receptacle. This will prevent water from running down the cord and into the TSUNAMI. The night mode sensor should be installed above the tank to "see" lighted areas of the aquarium. Do not submerge the sensor. Mounting to light fixtures or reflectors is permitted so long as the sensor temperature does

not exceed 150 degrees F. Plug the Night Mode Sensor into the jack on the rear panel of the TSUNAMI. The Night Mode Sensor must be exposed to light or the TSUNAMI will not switch the P1, P2, & P3 outlets. Turn all of the Timing Control Knobs counterclockwise. Plug the power cord of the TSUNAMI into an AC receptacle. The Main pump, and P2 will come on. P1, P2 and P3 will begin to alternate based on the Timing Control Knobs settings (clockwise to increase time). Front panel LED's indicate which pumps are running. Experiment with settings of the Timing Control Knobs. Usually, settings of 5 to 10 minutes provide the best results. Short times may cause overheating and shortened the life of powerhead pumps. Therefore, the TSUNAMI's design does not allow settings of less than approximately 1 minute.

Observe the behavior of your inhabitants to determine if the location, direction, and timing you have chosen are suitable. Especially, look for dead zones where detritus removal may be inadequate.

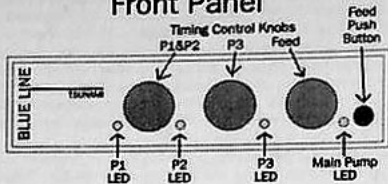
Night Mode

With the sensor plugged in and installed in view of the lighted areas of the tank, the TSUNAMI provides changing flow patterns to simulate daytime in the reef. When the lights go off, the TSUNAMI switches to a more gentle mode where P2 is continuously on, P1 & P3 are off. Keep this in mind when placing P2. Some users will want to place P2 near the surface to maximize gas exchange, while allowing deeper inhabitants a calmer environment for the nighttime hours. If the sensor is unplugged, the TSUNAMI defaults to the daytime Mode.

Feed Mode

The Feed mode prevents food from being filtered out before it is consumed. Depress the Feed push-button to turn off the main (and powerhead pumps) during feeding. The Feed Timer Control Knob should be adjusted to allow food consumption prior to restart of the pump(s). Users should determine whether or not they want to have the powerhead pumps on or off during feeding. The selector switch on the rear panel is used to make this selection.

Front Panel



Rear Panel

