

Operating Instructions for Zefon Biopump



Calibration (in the field):

1. Press the On/Off button to turn on the pump.
2. Use the Up/Down arrow buttons to select CAL.
3. Connect the end of the flow indicator to the Bio-Pump.
4. Press the Set button and the pump will start running at low speed.
5. Press the Up/Down arrow buttons rapidly to adjust the flow rate until the silver ball in the flow indicator is in the middle of the black (15 L) line.
6. Press the Set button to save the calibration. The pump will stop automatically.
7. Press Up/Down arrow button to select Verify Calibration.
8. Press Start/Stop to begin verification. The silver ball should reach the middle of the black line and remain there.
9. Press the Start/Stop to end verification.
10. Remove the flow indicator.

Spore trap collection:

1. Calibrate the pump prior to sampling.
2. Determine sampling sites.
 - ▲ *Collect an indoor sample from an unaffected area to serve as a control.*
 - ▲ *Collect a representative outdoor sample to provide a reference for determining whether certain fungi are being amplified in the indoor environment.*
 - ▲ *Submit a blank, unexposed spore trap cassette with each sampling event to serve as a negative control.*
3. Place the pump in the desired location.
4. Label the spore trap cassette with sample number.
 - ▲ *Do not use damaged or expired cassettes.*
 - ▲ *Avoid writing over the lot number and expiration date on the cassette.*
5. Remove the label from the outlet port of the cassette and place it on the side of the pump.
 - ▲ *The labels on the outlet and intake ports will be used later to seal the cassette.*
6. Place the cassette on the rubber grommet on top of the pump until it fits snugly.
7. Immediately before sampling, remove the spore trap label from the inlet of the cassette and place it on the side of the pump.
8. Examples of recommended sampling times:
 - ▲ *Sampling volume (15 L/min); 75 total liters is recommended as a benchmark for representative sample volume.*
 - ▲ *The flow rate recommended for total spore sampling is 15L/min for 3-5 minutes with Air-O-Cell, VersaTrap, and Allergenco-D cassettes, and 5L/min for 5 minutes with Micro-5 cassettes. Longer sampling times are used for clean rooms, hospitals, and remediated areas.*
 - ▲ *In dusty or heavily polluted areas, particle overloading may occur, and sampling times/volume should be adjusted accordingly.*

LOCATION		SAMPLING TIME
Outdoor (depending on season)		2-5 minutes
Indoor	Clean office (no visible dust)	5 minutes
	High activity personnel	2-5 minutes
	Drywall renovation or industrial dust	1 minute
	Visible dust present	30 seconds

9. Turn on the pump.
 - ▲ *The impacted area (trace) of the spore trap should appear opaque, not white, when an appropriate amount of sample has been collected.*
 - ▲ *If the trace appears white, repeat the sample collection for a shorter amount of time.*

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10. When sampling is completed, replace the label on the spore trap cassette inlet port.
11. Remove the cassette from the pump by gently pulling upward.
12. Replace the label on the cassette outlet.
13. Shipping:
 - a. Clearly label each sample with a Sample Number and complete the Chain of Custody (COC).
 - b. Place the cassettes in a Ziploc bag in a box with sufficient packing material to prevent damage and ship to the laboratory with the completed COC form.
 - ▲ *Keep spore trap cassettes at room temperature to prevent melting of the gel layer.*
 - c. Ship samples Monday through Friday.

Maintenance:

1. Prior to use, inspect the electrical cord, plug, and rubber grommet for frays, cracks, wear, degradation, or contamination.
2. If the pump demonstrates any of the above, do not use the equipment and return it for service.

Battery Use & Care:

1. Checking the battery power
 - a. Press the On/Off button to turn on the unit.
 - b. Use the Up/Down arrow buttons to select Battery. The display will show the percentage of the battery life left.
 - 1) LOW BATTERY will be displayed when there is enough power for approximately one five-minute sample.
 - c. Press the On/Off button on the pump to turn off the power.
2. Charging the battery
 - a. Plug in the female end of the battery charger into the jack at the back of the Bio-Pump.
 - b. Plug the opposite end into an electrical outlet.
 - 1) The green LED light in the back of the unit will light up. When charging is complete, the light will go out.
 - 2) Charging takes ~2-3 hours.
 - 3) If the pump is not used for an extended period of time, it will slowly lose its battery charge.
 - 4) A typical charge will allow 30 spore trap samples to be taken at 5-minute collection times per sample.
3. AC Power Operation
 - a. Plug in the female end of the battery charger into the jack at the back of the Bio-Pump.
 - b. Collect samples as normal.

Reference:

Biopump Operating Instructions. Zefon International, Ocala, FL. LAO3066 Rev. 2.