

Bio-Pump® IAQ Lite

Operating & Instruction Manual



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Section 1 - Warranty Information

LIMITED WARRANTY

The Environmental Express Bio-Pump IAQ Lite is warranted against defects in materials and workmanship when used in accordance with applicable instructions, for a period of one (1) year from the date of shipment. This warranty extends to parts, labor, and any approved transportation costs. This warranty applies only to damage or failure caused by normal use. The warranty is limited to product repair. If Environmental Express is unable to repair the Bio-Pump IAQ Lite, the customer may, at his or her option, receive a replacement unit or a full refund.

In no event shall Environmental Express have any obligation to make repairs, replacements, or corrections required, in whole or in part, as the result of (i) normal wear and tear, (ii) accident, disaster or event of force majeure, (iii) abuse, neglect, misuse, fault, or negligence of or by customer, (iv) use of the product in a manner for which it was not designed, (v) causes external to the product such as, but not limited to, power failure or electrical power surges, (vi) improper storage and handling of the product, (vii) use of the product in combination with equipment or software not supplied by Environmental Express, (viii) ordinary maintenance, (ix) alterations, repairs or installations that have not been performed by Environmental Express or its authorized representative or (x) failure to maintain product in accordance with Environmental Express' written instructions.

Environmental Express makes no other warranty, expressed, or implied for this product with respect to merchantability, fitness for a particular use or any other matter and expressly disclaims all other warranties. Environmental Express is not liable for any consequential, special, indirect, or compensatory damages arising from use of, or in conjunction with this product. The maximum liability of Environmental Express (whether by reason of breach of contract, tort, indemnification, or otherwise provided herein) shall be the invoice price of this product.

REPAIR POLICIES

If it should become necessary to return the Bio-Pump IAQ Lite pump for service, please call Environmental Express at 1-352-854-8080 for a return authorization number and return instructions. Please have the unit serial number and a description of the problem handy. The serial number is located under the battery. All units must be complete with the pump, case, charger, and flow indicator for a complete evaluation. Units returned without all of these items cannot be thoroughly evaluated by our service department. The sender is responsible for shipping charges, freight, insurance and proper packaging to prevent damage in transit. A return authorization number must be issued prior to shipment and must be marked on your shipment.

Under Warranty Repair

If the Bio-Pump IAQ Lite should fail to operate as warranted within the warranty period (one year from date of shipment), Environmental Express will repair it and ship it back to the customer at Environmental Express' expense. The remainder of the warranty period will be honored from the original ship date. Environmental Express will bear the cost of ground transportation both to and from the customer's location, and bear the cost of any parts, labor, and cleanup required.

If, however, it is determined that the damage to the Bio-Pump IAQ Lite was caused by negligence or improper use or by another excluded cause as set forth above, this warranty will not apply. The warranty is also void if the system is used beyond its intended purpose or in the event of any unauthorized repair. In such cases, reasonable and customary repair charges will apply. Repair charges will be quoted prior to work being done.

Out of Warranty Repair

If the Bio-Pump IAQ Lite fails after the warranty period has lapsed, the repair procedure is as follows:

First, notify an Environmental Express Technical Service Representative of the product's failure and place an order for repair. Whenever possible, our customer service technician will walk you through possible troubleshooting scenarios which may enable you to repair your unit on-site. **After any repairs are performed, contact Environmental Express on how to verify a safe operation.**

If on-site repair is not possible, the customer may return the non-working unit to Environmental Express using appropriate shipping containers and insurance. Repair charges will be assessed and estimated prior to work being done. Repair charges will include all freight costs as well as reasonable and customary charges for parts and labor.

NOTE: *This warranty does not apply to any consumable items associated with the Bio-Pump IAQ Lite.*

Section 2 - Declaration of Conformity

This device complies with Part 15 of FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

This device contains licence-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Development Canada's licence-exempt RSS(s). Operation is subject to the following two conditions: 1. This device may not cause interference. 2. This device must accept any interference, including interference that may cause undesired operation of the device.

L'émetteur/récepteur exempt de licence contenu dans le présent appareil est conforme aux CNR d'Innovation, Sciences et Développement économique Canada applicables aux appareils radio exempts de licence.

L'exploitation est autorisée aux deux conditions suivantes : 1. L'appareil ne doit pas produire de brouillage; 2. L'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

Changes or modifications not expressly approved by Environmental Express could void the user's authority to operate the equipment.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.

- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Section 3 - Specifications

Intended Use

- The Bio-Pump IAQ Lite is an advanced portable, battery-powered air sampling pump designed for exclusive use with Air-O-Cell® and Via-Cell® cassettes. Protection provided within the system may be impaired if the device is used in a manner for which it is not intended.

Technical Specifications

- Flow rate: 15 LPM
- Accuracy: ±5%
- Housing: PC/ABS plastic
- Battery: rechargeable nickel metal hydride (NiMH)
- Run time: 100 five-minute samples on new, fully charged battery
- Dimensions: 4.5" W x 2.75" H x 8" D (11.4 x 7 x 17.4 cm)
- Weight: 1.75 lb (0.79 kg)

Section 4 - What Is Included

- Bio-Pump IAQ Lite pump (Part # W30128)
- Air-O-Cell cassettes, 10/pk
- Air-O-Cell airflow indicator
- Battery pack
- Charger, 120–240 VAC (US plug only)
- Carrying case

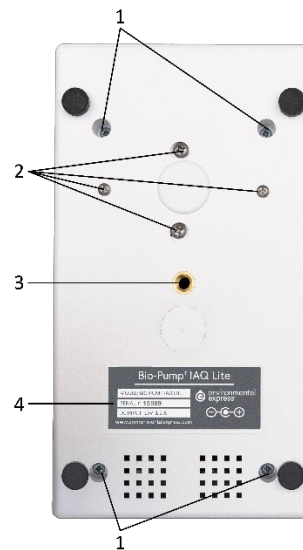
Section 5 - Physical Description

Top View of Pump



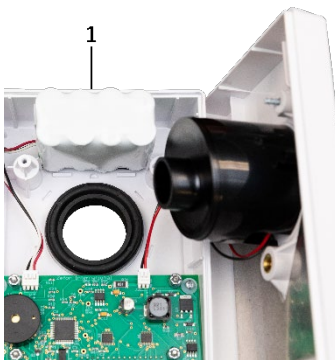
1. Cassette retainer
2. LCD
3. SAMPLE COMPLETE light
4. START/STOP button
5. Battery charging jack
6. POWER button
7. UP/DOWN arrows
8. LOW BATTERY light
9. SET button
10. QUICK SAMPLE button
11. CHARGING light

Bottom View of Pump



1. Housing screws, qty: 4
(remove only to change battery)
2. Motor assembly mounting screws, qty: 4
(DO NOT REMOVE)
3. Tripod mounting threads, 1/4"
(on bottom)
4. Serial number and certification label

Interior View of Pump



1. Battery pack

Section 6 - Cautions and Warnings

1. When The pump may be opened only to change the battery. Do not touch board components when changing battery and handle the board by the edges only.
2. Always follow basic safety precautions when using this product to reduce the risk of injury, fire, or electric shock.
3. Batteries may explode or leak and cause burn injury if disassembled.
4. Use ONLY the charger and battery supplied with the Bio-Pump IAQ Lite. Using a different battery or charger can damage the pump or cause injury from explosion.
5. Do not submerge the pump or subject the pump to any liquids.
6. Do not open the pump case except to change out an old battery.
7. Do not block the vent holes under the unit.

Section 7 - Calibration

It is recommended that Bio-Pump IAQ Lite is calibrated and verified at least once every day of use. A flow indicator for Air-O-Cell cassettes is supplied with the pump for ease of calibration. You may also calibrate the pump using an optional TSI® 4046 Primary Calibrator with attachments or using an optional Via-Cell flow indicator (if sampling with Via-Cell cassettes). These are the only approved calibrators that are specifically designed to work with low backpressure impeller fan type pumps.

Warning: DO NOT calibrate the pump using any other devices. Doing so will yield inaccurate readings due to the backpressure created by the calibrators and may void warranty. Calibrators known by Environmental Express to cause these inaccuracies include, but are not limited to, Bios Drycal, Bios Defender, Gilian Gilibrator, Gilian Challenger, and standard MiniBuck calibrators.

Adjusting the Calibration

1. Press the **POWER** button to turn the pump on.
2. Using the arrows, select **CALIBRATE BIO-PUMP**.
3. Connect the flow indicator or TSI Calibrator.



Air-O-Cell flow indicator connected to pump.



TSI 4046 Primary Calibrator connected to pump.

4. Connect the flow indicator or TSI Calibrator.
5. Press the **SET** button.
6. The pump will begin running at a default flow rate that is approximately 15 LPM. Use the arrows to adjust the flow rate until "15 LPM" registers on the flow indicator or on the TSI's LCD.

7. Press the **SET** key to save the calibration

Note: When you enter the *Calibration* mode, the pump will reset its flow rate to the default setting. To check the pump calibration without resetting the flow rate, you may use the *Verify Calibration* function.

Verifying the Calibration

1. Press the **POWER** button to turn the pump on.
2. Use the arrow buttons to select **VERIFY CALIBRATION**.
3. Connect the flow indicator or TSI tube adapter.
4. Press the **SET** or **START** button to begin.
5. Measure the flow rate with the calibrator. To stop, press the stop button. To adjust the calibration, use the **CALIBRATE BIO-PUMP** option as described above.

Section 8 - Sampling Modes

The Bio-Pump IAQ Lite pump features a choice of 3 different sampling modes. We strongly recommend that the sampling mode is chosen after calibration is complete.

- **Quick Sample** — This mode allows easy sampling with the most commonly used sampling times of 1, 2, 5, or 10 minutes.
- **Single Sampling** — This mode is designed to take one sample at a predetermined amount of time. The sampling time can be set anywhere from 1 minute to 9 hours, 59 minutes.
- **Sequential Sampling** — This mode allows the pump to be programmed to turn on and off at predetermined times. The user programs the number of on/off cycles, the cycle run time, and the cycle off time.

Taking Sample(s) Using the *Quick Sample* Mode

1. Place the pump in the desired location.
2. Place cassette on the rubber grommet on top of the pump so that the cassette fits snugly.
3. Press the **POWER** button to turn the pump on.
4. Press the **QUICK SAMPLE** button. The display should read “Quick Sample, 1 minute.
5. Continue to press the **QUICK SAMPLE** button to change the sampling time from 1, 2, 5, and 10 minutes.
6. Once the correct number of minutes is displayed, press **START** to begin sampling.
7. Once completed, the unit will beep, the display will show **SAMPLE COMPLETE** and the yellow sample complete light will turn on. Remove cassette from pump by gently pulling upward. Seal cassette, document the sample run time and send to laboratory for analysis.

Note: **QUICK SAMPLE** mode will exit upon hitting the **SET** button at any time.

Taking Sample(s) Using the *Single Sample* Mode

1. Place the pump in the desired location.
2. Place cassette on the rubber grommet on top of the pump so that the cassette fits snugly.
3. Press the **POWER** button to turn the pump on.

4. Using the arrows, select **SINGLE SAMPLING MODE**.
5. Press **SET**.
6. Using the arrows, enter the sample run time (adjustable in 1 minute increments).
7. Press **SET** (optional).
8. Press **START** to begin sampling. Once completed, the unit will beep, the display will show **SAMPLE COMPLETE** and the yellow sample complete light will turn on. Remove cassette from pump by gently pulling upward.
9. Seal cassette, document the sample run time and send to laboratory for analysis.

Note: **SINGLE SAMPLE** mode will exit upon hitting the **SET** button after runtime has been set. Previous runtime will be stored in memory.

Taking Sample(s) Using the *Sequential Sampling Mode*

1. Setup the pump as described in steps 1-3 for single sampling mode.
2. Using the arrows, select **SEQUENTIAL SAMPLING MODE**, then press **SET**.
3. Using the arrows, select the number of on/off cycles, then press **SET**.
4. Using the arrows, select the CYCLE RUN TIME (adjustable in seconds), then press **SET**.
5. Using the arrows, select the CYCLE OFF TIME (adjustable in seconds), then press **SET**.
6. Press **START** to begin sampling. Once completed, the unit will beep, the display will show **SAMPLE COMPLETE** and the yellow sample complete light will turn on. Remove cassette from pump by gently pulling upward.
7. Seal cassette, document the sample run time and send to laboratory for analysis.

Note: **SEQUENTIAL SAMPLING MODE** mode will exit upon hitting the **SET** button after runtime and off-time have both been set.

Section 9 - Battery Charging and Status

Checking the Remaining Amount of Battery Power

1. Press the **POWER** button to turn the pump on.
2. Using the arrows, select **BATTERY LEVEL**. The display will show "Checking Battery Level".
3. After a few seconds the percentage of battery life remaining will be displayed.

Low Battery Indicator

When the battery level becomes very low, the red LED will come on. Some additional samples may still be taken, but the unit should be plugged in as soon as possible.

Low Battery Shut Down

If the battery's voltage drops low enough that the unit will not operate reliably, or if for any reason an inconsistent motor speed is detected, the unit will shut down. During shutdown, the amount of actual run time will be saved. When power is restored, "Incomplete run" will be displayed on the home screen. Previous sample may be continued, or a new sample may be started.

Charging the Battery

To charge the battery, plug in the charger. The green charging light next to the LCD display will illuminate to

indicate the unit is charging. When charging is complete, the charging light will blink. A full battery charge takes approximately 3 hours. If the pump will not be used for an extended period of time, it will slowly lose its battery charge and will need to be recharged before use. During these extended periods, the pump can be kept on AC power so the battery receives a trickle charge.

AC Power Operation

The Bio-Pump IAQ Lite may be operated using standard AC power supplied by the charger

Section 10 - Battery Installation

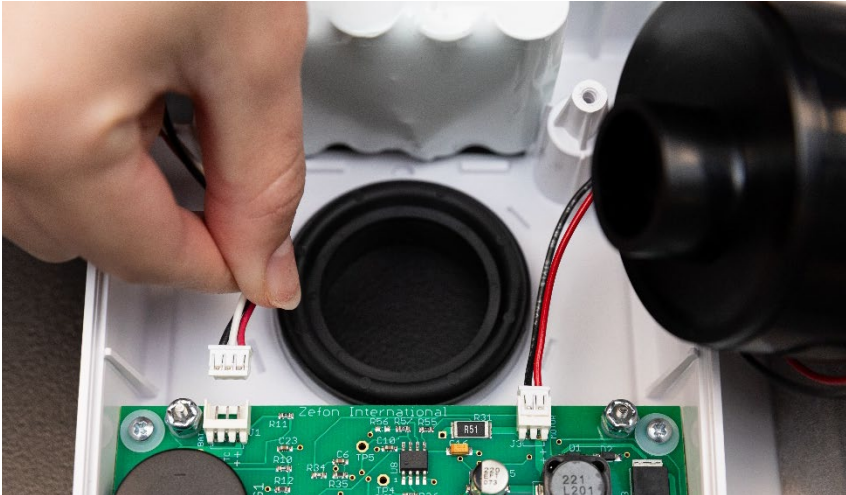
1. Remove the four Phillips-head screws at each far corner of the bottom case.



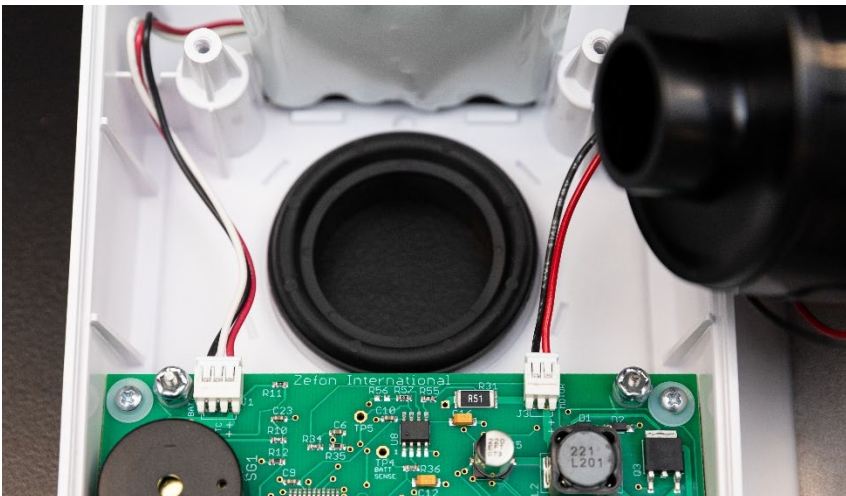
2. Lift the bottom case about one centimeter up, and turn it over TO THE RIGHT of the top case.



3. Unplug the old battery from the circuit board. Remove it from the top of the case.



4. Install the new battery in the same orientation as the old, plug it into the board, and replace the bottom cover with four phillips-head screws. **Do not overtighten as screws might strip.**



Section 11 - Cautions and Warnings

1. The pump may be opened only to change the battery. Do not touch board components when changing battery and handle the board by the edges only.
2. Always follow basic safety precautions when using this product to reduce risk of injury, fire or electric shock.
3. Batteries may explode or leak and cause burn injury if disassembled.

4. Use **ONLY** the charger and battery supplied with the Bio-Pump IAQ Lite. Using a different battery or charger can damage the pump or cause injury from explosion.
5. Do not submerge the pump or subject the pump to any liquids.
6. Do not open the pump case except to change out an old battery.
7. Do not block the vent holes under the unit.

Section 12 - Accessories and Consumables



Tripod stand ZA0043



Air-O-Cell cassettes AOC050



Air-O-Cell Flow Indicator BPIL-302

Description	Part #
Heavy-duty tripod sampling stand	ZA0043
Remote extension tubing, 5 ft	ZBP-310
Bio-Pump IAQ Lite Pro Kit with Accessories	BIO-PUMP IAQ LITE-PR
Calibration kit with TSI 4046 Primary Calibrator	BIO-PUMP IAQ LITE-CK
Airflow indicator for calibrating Air-O-Cell cassettes	BPIL-302
Airflow indicator for calibrating Via-Cell cassettes	BPIL-305
Air-O-Cell cassettes (50/pk)	AOC050
Air-O-Cell cassettes (10/pk)	AOC010
Via-Cell cassettes (10/pk)	VIA010