

## Pressure/Vacuum Pump

Model # ALA PV-PUMP Ver. 2.1 July 2020

The P-V Pump was primarily designed to serve as a vacuum and pressure source for the High-Speed Pressure Clamp from ALA Scientific. The Pressure Clamp requires 0.5atm pressure and 0.5atm vacuum to be delivered simultaneously to the valve in the head stage. The pumps must be able to maintain the pressure and flow requirements of the HSPC.

**SAFETY INFORMATION:** This equipment is intended for laboratory use only, it has no clinical applications. It is intended for use by qualified and trained laboratory personnel only.

**Risk of Electric Shock:** Pumps require line voltage AC power. Please check the label on the side of the pump to determine which voltage is required. Be aware that pump performance will vary at 50 and 60Hz. Connection of incorrect line voltage is not covered under warranty. Never run this equipment in a wet environment. Power switches are equipped with indicator lamp. If indicator lights up and pump does not go on, shut down immediately and report to factory or distributor.

**Pressure:** These pumps can develop about 1 atm pressure. While this is not high pressure, pressurizing large volumes even at low pressure can be dangerous. Only use this product as intended. Never pressurize anything not rated for the maximum output pressure of the pump.

**Burn injury:** Be aware that pumps running for a long time will get hot to the touch. Prolonged exposure to skin can cause a burn. Avoid contact with pumps while in operation. Keep pump unit on lab floor in cool location for best performance. Always shut down when not in use.

The P-V Pump is equipped with two AC powered air pumps, the model VPO-140 from Medo. These pumps can move up to 3.0 l/min of air and

Maximum Vacuum: 17.5 in"Hg / 592 mbar

Frequency: 60 Hz / 50 Hz

Noise Level: 40 dB(A) Max. @ 1 meter

Recognition: UL / CE

Dimensions: 32cmx10cmx15cm ht.

Weight: 3.4Kg

## Warranty

ALA Scientific Instruments, Inc. agrees to warranty this product for a period of one year from date of shipment against defects in workmanship and material with the following exceptions: Pumps will only be covered for 90 days. ALA and its associates will not be responsible for any damage to other devices occurring from the use of this product. Use of this product in a manner inconsistent with these instructions voids the warranty. Opening any component or any modification done without factory permission in writing voids warranty. Remedy shall be limited to repair or replacement at ALA Scientific Instruments discretion. Your rights may vary from state to state, country to country.

ALA Scientific Instruments Inc. | 60 Marine Street, Farmingdale, NY 11735 Voice: +1 631.393.6401 fax: +1 631.393.6407 www.alascience.com support@alascience.com just make a slight hum. The metal base on which the pumps are mounted serve as an air tank reservoir for the pressure and vacuum created by the pumps as well as damping capacitors to remove pump motor noise. One pump is plumbed to provide vacuum and the other to provide pressure. The pressure and vacuum are measured by gauges on the front panel. Each gauge has an equivalent scale in atm, though the max reading is different on each gauge. This means that one must read the gauge carefully to see that the pumps are balanced at 0.5 atm.



The output is connected to the two luer fittings on the front of the gauge housing, one for pressure and one for vacuum. Each pump has a separate power switch. Should one not be required, it can be turned off while the other runs. Pumps should not be run unless they are being used. VPO-140 pumps are rated for 60 minutes of continuous use. Our tests have shown that they can run much longer than that if they are used in a cool environment. The P-V Pump is intended to be placed on the floor for operation. Always shut off pumps when not in use to save pump life. (Note that 220V models run much cooler and have an indefinite duty cycle due to low heating.) All P-V Pumps are tested at ALA for 24 hrs continuous operation before shipping.

On the side of each base there is a panel with two brass bleeder valves. Each bleeder valve is set at the factory to bleed its side to 0.5 atm pressure or vacuum at sea level. Should performance of the pumps change these valves can be re-set with an Alan wrench.



The one on the left is the pressure relief. It can be adjusted with a 5/32<sup>nd"</sup> Allen wrench. The vacuum adjustment can only be adjusted by removing the entire panel since its adjustment is internal. If your pressures are out of balance due to altitude or 50 Hz operation, we recommend adjusting the pressure only to match the vacuum since it is easier. The screws on the panel also accept a 5/32<sup>nd</sup> Alan wrench. DO NOT ATTEMPT TO ADJUST THE VACUUM BLEEDER FROM THE OUTSIDE, SEVERE DAMAGE CAN RESULT AND VOID WARRANTY.

Two times per year one side panel should be opened to remove trapped moisture from the reservoir tanks. Allow tanks to dry overnight before reclosing the side panel. If a considerable amount of moisture is trapped, perform this procedure more often.

ALA Scientific Instruments Inc. | 60 Marine Street, Farmingdale, NY 11735 Voice: +1 631.393.6401 fax: +1 631.393.6407 www.alascience.com support@alascience.com

## **OPERATION**

Place pump on floor in location it will be used. Connect to mains power via plug in rear. Check label on pump to be sure correct voltage is connected. Turn on pumps via lighted rocker switch on top of console. Pump will make a hum noise when running and air should hiss. If pump is dead-ended, air hiss will stop from top of pump, and then resume when bleeder valve cracks at 0.5 atm. If too much air is allowed to flow into pump, i.e. if the P-V outputs are wide open, the reservoirs will not reach pressure. Always dead-end outputs (luer connectors) to check pump performance as devices attached to pumps may alter readings depending on their air consumption.

Note that the scale ranges on both gages are different, but both gages have a common atm scale that should be used. When using with the ALA HSPC, these gages may vary a bit during operation, but the HSPC can compensate for that slight difference. Seal off the two luer inputs periodically to see that the pumps are in adjustment. If they are not, adjust pressure bleed first as per instructions above.

Turn off pumps when not in use to save pump life, un-plug mains connection when not needed. Report any irregularities in operation to your distributor. Pumps should run quietly and get warm to hot during usage. If moisture should be seen coming out of pump, discontinue usage immediately, follow above procedure for draining reservoir tank. Do not run again until fully dry. If this becomes a constant problem consider using a de-humidifier in your location.

## **Specifications**

Voltage: 115V AC or 230V AC

Maximum Airflow: 0.12 cfm / 3 l/min