# LeveLock™ LL-2

## μFluid Chamber Level Controller

# Vacuum Waste Kit

## VWK

Minimizing fluid levels in recording and imaging chambers is critical for reducing stray capacitance and noise, but maintaining low fluid levels with surface aspiration generates turbulent flow and unstable liquid levels. ALA's LeveLock™, LL-2, features a miniaturized, exquisitely sensitive optical sensor that regulates aspiration beneath the air-liquid interface, providing stable and smooth liquid flow at very reduced fluid levels. The LeveLock™, LL-2, is excellent for cellular electrophysiology and imaging applications.

**LeveLock™ LL-2 System Highlights:**

- Optical sensor eliminates electrical noise
- Controls fluid levels within 100 μm!
- Subsurface aspiration minimizes turbulence
- Overflow protection to safeguard expensive optics
- Handles flow rates up to 0 and 8ml/min
- Miniaturized sensor works in confined areas


LL-2 and sensor shown with LL-SHOLD

The LeveLock™, LL-2, fluid level controller is the only commercial fluid level controller designed for the sensitive environment of the patch clamp rig.

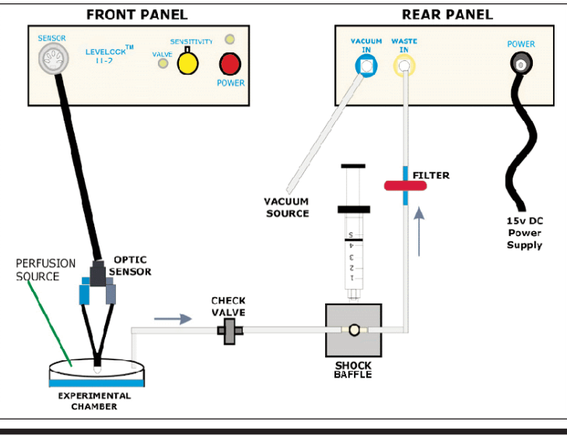
The LeveLock™, LL-2, utilizes an insulated optical fiber that transmits infrared light. Because of the infrared signal, no electrical noise is generated in the vicinity of the preparation and no radiative pickup by the sensor components is possible. The aspiration valve is positioned beneath the air-liquid interface. This minimizes turbulence and enables use of insulating films on the bath surface.

Expanded view of LL-2 sensor

Optional LL-2 sensor holder

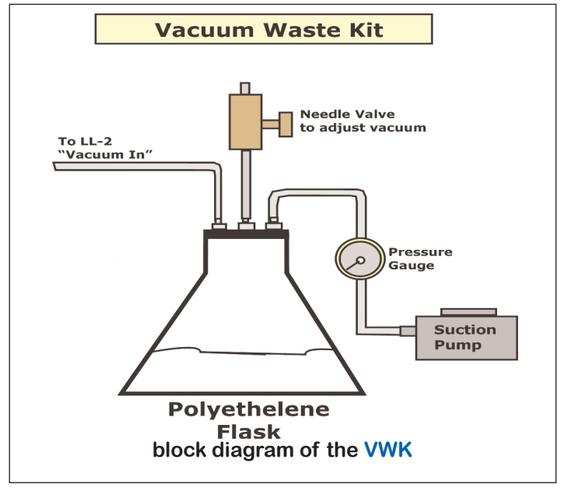
Block diagram of a typical set-up. There are three main items in the fluid flow pathway to the Level-Lock™. The first is a check valve, which should be located close to the chamber. Second is a shock baffle, that consists of a syringe on a stand. The third is a filter to protect and prolong the life of the valve in the Level-Lock™. Note: the shock baffle and filter should be kept close to the Level-Lock™.

A vacuum source (like the VWK) must be connected to the back of the Level-Lock™. It should have a collection chamber to gather all the effluent for disposal. The vacuum source need not be greater than -17kPA. A strong vacuum source should be attenuated with a needle valve to reduce the suction.

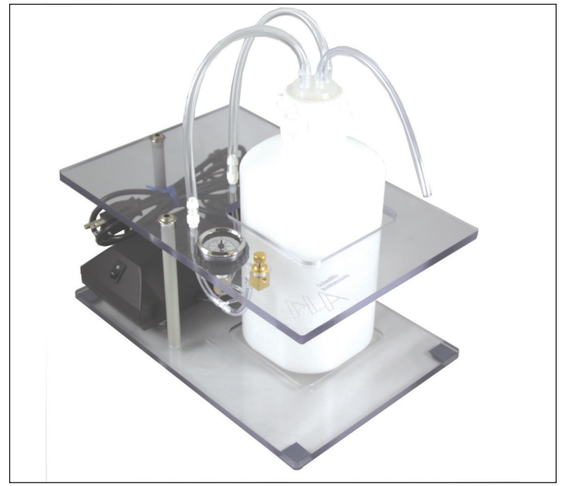



### An Economical Laboratory Waste System

The vacuum waste kit VWK is designed to assist in the removal of fluid from cell preparations. It can provide up to -2.5psi/-17.2kPa suction and trap nearly 2l of fluid. It serves as an ideal suction source for the ALA LeveLock™ fluid level controller, and is ideal for all light duty suction jobs involving small cell chambers. Using the VWK in an experiment is very simple. The gauge will read the vacuum pressure in the flask. The needle valve is provided to reduce the amount of suction to your system or cell chamber. The VWK comes with a 2l polyethylene flask, vacuum pump, vacuum gauge, needle valve, misc. fittings and tubing, and a plastic stand. The plastic stand stabilizes all of the parts in a small area so it takes up as little room as possible in tight laboratory setups.




block diagram of the VWK



| Specifications - LL-2 | | | |
|---|---|---|---|
| Controller Size | 13.5x13.5x5.1cm | Flow rate | 0-8ml/min with Lee LFAA valve |
| Weight | 0.77lb/350g | Vacuum requirement | -2.5psi/-17.2kPa |
| Power Requirement | 15V 1A | OD of fiber optic sensor | 0.0195”/0.5mm |
| Nominal length of fiber optic | 5in/12.7cm | IR frequency | 950nm (peak) |
| Sensor cable | 1.5m | Sensor material | Lucite/Acrylic |
| **Specifications - VWK** | | | |
| Dimensions | 12x10x9” / 30x25.4/23 cm | Weight | 3.2kg / 7 lb |
| Power Requirement | 110/220VAC 3.5W | Tubing Diameter | 1/16”/1.6mm x 1/8”/3.2mm PVC |
| Storage Container | 2 liter flask | Max Vacuum | -2.5psi/-17.2kPa |
| **Ordering Details and Accessories** | | | |
| ALA LL-2 | LeveLock™ - Chamber Fluid Level Controller | | |
| ALA LL-2Filter | 20μm waste filter replacement for LeveLock™ - Set of 10 | | |
| ALA VWK | Vacuum Waste Kit - for use with LeveLock™ or stand alone | | |
| ALA LL-SHOLD | LeveLock™ optional sensor holder with adjustment control | | |

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