Low Current Retractable Rear-View LEED System
Model RVL2000/8/MCP

The LK Technologies Low Current Rear-View LEED system is designed for low current applications or sensitive samples where nanoampere (single MCP) or picoampere (dual MCP) levels are required. The system consists of 4-Grid LEED optics, single or dual micro-channel plate and phosphor screen, and low energy electron gun. The 4th grid and front micro-channel plate are tied together to eliminate field distortion into the flat micro-channel plates. The entire system is mounted on a standard 203.2 mm CF flange with 100 mm view port and is entirely UHV compatible. The Model RVL2000/8/MCP has a 10" sample-to-flange working distance with 1.8" travel. The optics are translated by a single lead screw on three precision linear ball-bushing slides internal to the vacuum. The lead screw is in turn driven by the UHV rotary feedthrough mounted perpendicular to the optic axis to allow unobstructed viewing of the LEED pattern.

The system can also be used as an ESDIAD detector simply by reversing the polarity of the channel plate bias. The optics is compatible with either RVL/SE or RVL/AES controllers. In addition the RVL/MCP micro-channel plate control electronics is required.

Model RVL2000/8/MCP specifications:

LEED Optics

4-Grid design:	Allows for higher resolution (<0.5%) during Auger operation. The 4th gird eliminates field distortion due to micro-channel plate bias.
Grid Construction:	3.94 lines per mm. (0.025 mm dia.) Tungsten wire. Aligned to minimize Moiré effects. Transmission: 83% per grid, 48% total. Geometry: 120° steradian acceptance
Collector:	Single or dual micro-channel plates with phosphor screen.

Electron Gun

Beam Energy	Adjustable between 0 – 3000eV
Beam Diameter	<1mm at sample position
Beam Current	5 μA at 500eV, with Tungsten filament (optional LaB_6 filament) Adjustable down to < .01 nA
Geometry	Concentric mounting. Small 1.59 cm gun dia. and gun support design provides minimum screen interference.

Optics Assembly

Mounting	Completely contained on a standard 203.2 mm (8.0 in) CF flange with 10 cm view port. Flange face to optics focus is 254.0 mm, 45 mm retraction. Custom lengths on request
Shield	Mu-metal shield.
Electrical	All connections are UHV bakeable feedthrus
Bakeout Temperature	200°C

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