All Quartz Mini Photoelectrochemical Cell Open System For Spectroscopy And Electrochemistry

Item Number: PL-DJ13

Introduction

High-performance all-quartz mini photoelectrochemical cell engineered for advanced optical and electrochemical research. This open system features a glue-free fused body delivering over ninety-five percent optical transmittance, a chemical-resistant PTFE lid, and a protective anti-scratch base.

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Application	Description	Key Benefit
Photoelectrocatalytic Water Splitting	Direct irradiation of semiconductor photoanodes to split water molecules into hydrogen and oxygen under bias potential.	Glue-free design and >95% light transmission maximize photon absorption and prevent organic background contamination.
Carbon Dioxide Photo-Reduction	Evaluating the photocatalytic efficiency of catalysts in reducing dissolved carbon dioxide into valuable chemical feedstocks.	Compatible with gas purging assemblies for precise control over dissolved carbon dioxide concentrations and headspace gas sampling.
Dye-Sensitized Solar Cell Testing	Characterizing the light-to-electricity conversion efficiency, open-circuit voltage, and short-circuit current of photoactive dyes.	Excellent optical clarity ensures uniform light delivery to the working electrode, yielding highly precise quantum efficiency measurements.
In-Situ Spectroelectrochemistry	Real-time monitoring of UV-Vis absorbance or fluorescence changes in electroactive species during potential sweeps.	High-purity quartz windows provide a clear, distortion-free optical path with negligible background absorbance across a wide spectral range.
Semiconductor Bandgap Analysis	Determining flat-band potentials, photocurrent onset potentials, and majority carrier types of thin-film semiconductors.	Open-system configuration permits rapid swapping of customized working electrodes (gold, platinum, or glassy carbon) for high-throughput screening.
Electrochemical Kinetic Studies	Measuring cyclic voltammetry, linear sweep voltammetry, and electrochemical impedance spectroscopy of photoactive molecules.	Stable, chemical-resistant PTFE lid maintains rigid electrode positioning, ensuring highly reproducible spatial geometry and current responses.

Parameter Category	Specification Details	Technical Values & Materials
Product Identification	Model Identifier	PL-DJ13
Body Construction	Fabrication Method	All-Quartz Thermal Fusion Welding (100% Glue-Free)
Optical Characteristics	Light Transmittance	≥ 95% (across UV-Vis-NIR spectrum)
Structural Configuration	Reactor Type	Open System / Open Top Architecture
Lid Specifications	Material	High-Purity Virgin Polytetrafluoroethylene (PTFE)
Protective Base	Material & Function	PTFE Protective Sleeve (Anti-scratch / Bottom optical window protector)
Gas Management	Purging Capabilities	Compatible with optional gas inlet/outlet assemblies
Electrode Sizing (Standard)	Reference Electrode Port	Optimized for ∅ 3.8 mm Silver/Silver Chloride (Ag/AgCl) electrode
Electrode Sizing (Standard)	Counter Electrode Port	Optimized for ∅ 0.5 mm Platinum (Pt) wire electrode
Electrode Sizing (Standard)	Working Electrode Port	Optimized for ∅ 3.0 mm Glassy Carbon (GC) electrode
Electrode Sizing (Optional)	Replaceable Working Electrodes	Compatible with ∅ 3.0 mm Gold (Au) disk, Platinum (Pt) disk, or custom variants
Procurement Note	Electrode Inclusions	Electrodes are not included and must be purchased separately