

High Transparency Quartz Square Photoelectrochemical Cell With Monolithic Ground Construction And Ptfе Lid

Item Number: PL-DJ04



Introduction

Optimize your spectroelectrochemical research with this high transparency quartz square photoelectrochemical cell featuring a monolithic ground body with ninety-five percent light transmittance and a customizable chemical resistant PTFE lid designed for demanding open system B2B laboratory testing applications

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Application	Description	Key Benefit
Solar Energy & Photocatalytic Water Splitting	Evaluation of photoanode materials and semiconductor photocatalysts under solar simulators to measure hydrogen evolution rates and photon-to-current conversion efficiency.	High-transparency quartz walls (>95% transmittance) permit full-spectrum UV-Vis-NIR light penetration, facilitating maximum photo-excitation of the active catalyst.
Spectroelectrochemistry (SEC)	Real-time monitoring of UV-Vis absorption spectral changes during dynamic electrochemical redox cycles to identify transient reaction intermediates and determine reaction pathways.	Monolithic, adhesive-free construction prevents glue dissolution by organic solvents, avoiding baseline drift and optical interference during long-term scans.
Semiconductor Characterization	Performing Photoelectrochemical Impedance Spectroscopy (PEIS), Mott-Schottky analysis, and flat-band potential determination of thin-film semiconductors and photo-electrodes.	Highly parallel, polished optical windows eliminate refraction and beam distortion, ensuring a uniform light intensity profile across the electrode surface.
Corrosion & Electroanalytical Studies	Qualitative and quantitative analysis of trace heavy metals, electrocatalytic processes, and corrosion inhibitors in highly acidic or aggressive electrolyte solutions.	The combination of high-purity quartz and a chemically inert PTFE lid provides comprehensive chemical resistance, keeping the cell free from contamination.
Dye-Sensitized Solar Cell (DSSC) Characterization	Measuring light-to-electricity conversion efficiency, electron transport dynamics, and dye regeneration kinetics under continuous or pulsed light bias.	Customizable CNC-machined PTFE lid allows tight, organized routing of multiple working, counter, reference electrodes, and active gas purging lines.
Elevated Temperature Organic Synthesis	Conducting electrochemically driven organic synthesis and catalytic reactions at elevated temperatures where traditional polymer cells fail.	Quartz cell body tolerates temperatures up to 900°C, enabling high-temperature reactions and direct autoclave thermal sterilization after chemical runs.

Technical Parameter	Specification / Feature (PL-DJ04)	Specification / Feature (PL-DJ04-S)
Product Model Number	PL-DJ04	PL-DJ04-S
System Configuration	Open-System Architecture	Sealed-System Architecture
Cell Body Material	Optical-Grade High-Transparency Quartz	Optical-Grade High-Transparency Quartz
Light Transmittance	≥ 95% (UV-Vis-NIR Spectra)	≥ 95% (UV-Vis-NIR Spectra)
Manufacturing Method	Monolithic Ground & Polished (No Adhesive/Glue)	Monolithic Ground & Polished (No Adhesive/Glue)
Maximum Operating Temperature	900°C (Quartz Cell Body Only)	900°C (Quartz Cell Body Only)
Lid Material	High-Purity Polytetrafluoroethylene (PTFE)	High-Purity Polytetrafluoroethylene (PTFE)
Lid Port Customization	Customizable (Round/Square holes via CNC machining)	Customizable (Round/Square holes via CNC machining)
Salt Bridge Integration	Compatible with Fritted Glass (Sand Core) or Luggin Capillary	Compatible with Fritted Glass (Sand Core) or Luggin Capillary
Sterilization Compatibility	Autoclaving or Dry Heat (Ensure PTFE lid is removed)	Autoclaving or Dry Heat (Ensure PTFE lid is removed)