DSR500-LBIC Micro-Nano Photoelectric Imaging System, Galvo Scanning, 2 µm Spot

Model DSR500-LBIC · waveqvanta.com/products/dsr500-lbic-micro-nano-photoelectric-imaging-system

Galvo-scanned laser photocurrent imaging for mapping short-circuit current, defects and reflectance in micro-nano devices.



The DSR500-LBIC combines microscopic imaging with galvanometer laser scanning to deliver a small, stable monochromatic spot onto photovoltaic and photoelectric test devices. As the spot is scanned in XY, the software records the current at each point and builds a map of short-circuit current distribution, surface defects and reflectance, with the spot profile kept constant across the scan field. Typical samples include dye-sensitized, mono- and multicrystalline silicon, organic semiconductor and GaN devices.

Key features

- Galvo scanning for fast, high-resolution mapping without stage vibration effects
- Standard 532 nm laser; a second laser (405 or 635 nm, 10 or 30 mW) optional
- 20× objective with 260 × 200 µm maximum scan field, 2 µm laser spot and 0.2 µm minimum step
- Keithley 2450 source meter: 1 nA–1 A current range, 20 fA resolution, 0.03% accuracy
- 65 mm vacuum chuck carries both sample and probe holders, so moving the sample keeps electrode contact
- Photocurrent mapping at fixed bias and point-by-point I-V curve scanning over a user-selected area
- Optional spectral responsivity, QE and bias voltage tests from 200 to 1100 nm, extendable to 2500 nm

Specifications

Standard Laser	532 nm, 30 mW, stability 1% @ 2 h
Optional Laser	405 nm or 635 nm, 10 mW or 30 mW, output stability < 1% @ 2 h
Number of Lasers	1 standard, 2 optional
Illumination	Reflective / transmissive LED lighting
Objective	20× (Olympus), WD 7.5 mm, 350–750 nm
Max. Scanning Range	260 × 200 µm (20× objective)
Laser Spot	2 µm
Spatial Accuracy	< 1 µm
Scan Step	0.2–30 µm (minimum 0.2 µm)
Source Meter	Keithley 2450 (DSR500-LBIC)
Current Range	1 nA–1 A
Noise / Resolution	50 pA / 20 fA
Measurement Accuracy	0.03%
Sample Chuck	Φ65 mm vacuum suction plate; sample and probe holders move together
Stage Travel	25 mm, 5 µm resolution
Probe Holders	2, XYZ travel 12 mm, 0.7 µm resolution

Probes	Tungsten, 5, 10 or 20 μm diameter
Scan Modes	Photocurrent mapping at fixed voltage; I-V curve scanning per point
Data Processing	Thresholding, zoom, contour lines, line profile, 3D display, TXT/Excel export
Optional Spectral Responsivity	200–1100 nm, extendable to 2500 nm; SR, QE and bias voltage tests

Model overview

Model	Laser	Objective	Probe Station	Data Acquisition Unit
DSR500-LBIC	532 nm, 30 mW	20×, WD 7.5 mm	2 probe holders	Keithley 2450
DSR500-LBIC-RDB	532 nm, 30 mW	20×, WD 7.5 mm	2 probe holders	Not included

Typical applications

- Nanomaterials and 2D materials
- Wafer analysis
- Photoelectric characterization of detectors
- Pixel measurement of area-array detectors
- Micro-domain charge generation in devices
- Solar cell current uniformity and defect analysis