

Surface Photovoltage Kelvin Probe System

SPV020

The **Kelvin Probe** is a non-contact, non-destructive vibrating capacitor device used to measure the work function (ϕ) of conducting materials or surface potential of semiconductor or insulating surfaces. The ϕ of a surface is typically defined by the topmost 1-3 layers of atoms or molecules, so the **Kelvin Probe** is one of the most sensitive surface analysis techniques available. **KP Technology** Systems offer very high ϕ resolution of 1-3 meV, currently the highest achieved by any commercial device.

The SKP5050 with SPV020 is a comprehensive **Kelvin Probe** solution for researchers looking to carry out scanning measurements on their light sensitive samples; it comes with everything needed to produce reliable, repeatable results, due to the unique features provided by the 'Baikie System'.

The SKP5050 provides a scan area of 50mm by 50mm and can record up to 80 by 60 points in any one measurement. In single point mode the SKP5050 records up to 5000 data points per measurement. The SPV020 provides digital control of a range of light sources and allows for variable intensity measurements to be carried out.



"The Kelvin Probe that you developed is very wonderful because the distance is kept in measurement using gradient constant function. It is hard to set the distance between sample and probe with other systems. We have two company's Kelvin probes: the KP Technology System is better in sensitivity, easiness to use and customer service."

*Dr. Shinjiro Yagyu
National Institute for Materials Science
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THE BAIKIE SYSTEM

All KP Technology Systems are based upon unique features developed by Professor Iain Baikie. These features are unsurpassed by any other company.

- Highest work function/surface potential resolution of 1 - 3 meV (standard)
- Voice Coil driver provides very high rejection of driver talkover noise compared with piezoelectric systems
- Off null signal detection system for improved resolution - Our Signal-to-Noise (S/N) features remain unsurpassed in the field
- Height regulation feature to control the tip to sample spacing during measurements and scans which allows for stable, reliable and repeatable data
- Full digital control of all Kelvin Probe parameters
- Quick change probe tip allowing user selectable spatial resolution

WHAT IS INCLUDED?

- Kelvin Probe Head Unit with Integral Tip Amplifier & Tip
- Optical Kelvin Probe Mount with 25.4 mm Manual Translator
- Sample Holder with Gold/Aluminium Calibration Sample
- 3-Axis Motorised Translation Stage
- Digital Control Unit
- Dell PC with Monitor
- Data Acquisition System (Preinstalled in PC)
- Scanning Kelvin Probe Software (on CD and Preinstalled on PC)
- NI-DAQ Software (on CD and Preinstalled on PC)
- Faraday Screen
- Spare Tip Amplifier
- Power Supply Unit
- Associated System Cables and Manuals
- Optical Camera Arrangement with 7" Monitor and Optical Mounts
- Digital Oscilloscope
- Light Source
- SPV Optical Grade Enclosure
- 24 Month Warranty

SOFTWARE FEATURES

User digital control of probe amplitude, probe frequency, mean spacing, and tip potential. Automatic measurement of Kelvin Probe signal and work function averaging. Export of data to Excel compatible spreadsheets. The software also allows user control of motorised translators allowing custom (X, Y) scans, permitting high-resolution work function topographies up to 50mm per side. Software features tip tracking control during scanning and real-time 3D reporting of sample work function and sample height topographies.

ADDITIONAL INFORMATION

- Scanning system - 50mm x 50mm
- Height Control - 50mm (Manual and Automatic)
- Position Resolution - 0.3175 μm
- Tracking System - Automatic hold of tip to sample spacing to 0.3175 μm
- Light Sources - LED, Luxeon and Quartz Halogen
- Visualisation - 3D maps of surface potential
- Other Options - SPV010, SPS030, SPS040

