KP TECHNOLOGY

ULTRA-HIGH VACUUM SCANNING KELVIN PROBE SYSTEM

UHVSKP2020 • UHVSKP5050

SYSTEM DESCRIPTION

Our Ultra-high Vacuum Scanning Kelvin Probe (UHVSKP2020) gives the user full access to work function (Φ) and contact potential difference (CPD) measurements under vacuum with the ability to scan a sample area of 20 x 20 mm.

Each system comes with the UHV head unit, tip amplifier (located at the mounting port), digital control unit and host PC with dedicated software. The tip can be retracted 100 mm from the sample and approaches normal to the sample. The associated digital electronic unit powers the head unit and provides an interface between the head unit to the data acquisition system.

The system comes with a user manual, which includes an introduction to work function measurements and a detailed description of the system software, including some examples.

The work function resolution of the UHVSKP2020 is 1-3 meV.

The software allows the user digital control of probe amplitude and frequency, mean-spacing and tip potential. There is also automatic measurement of the Kelvin probe signal, work function, signal and work function averaging as well as automatic control of tip to sample mean spacing. Other features include variable scan sizes and 3D charting of the work function data. The data generated can be easily exported to Excel-compatible or KP Wize spreadsheets for further processing.

FEATURES

- Work function resolution of 1-3 meV
- SPV, SPS and APS options available
- Gaseous or ambient measuring
- Modular system for upgrades and add-ons
- Automatic height regulation

APPLICATIONS

- Organic and non-organic semiconductors
- Metals and metal alloys
- Thin films and surface oxides
- Solar cells and organic photovoltaics
- Corrosion e.g. protection and resistance

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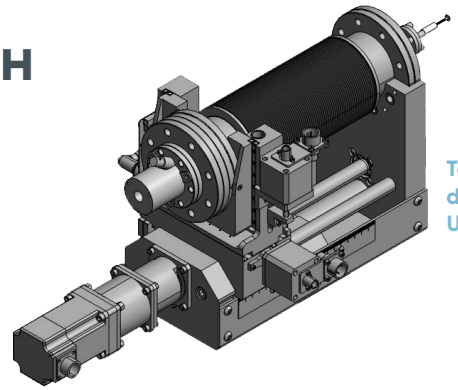
SYSTEM SPECIFICATIONS	UHVSKP2020	UHVSKP5050
Tip material / diameter	2 mm - 10 mm stainless steel tip	2 mm - 10 mm stainless steel tip
Work function resolution	1 - 3 meV	1 - 3 meV
Sample scanning	20 x 20 mm stepper motor controlled	50 x 50 mm stepper motor controlled
Mounting geometry	Normal to sample surface	Normal to sample surface
Tip retraction	50 mm - 100 mm	50 mm - 100 mm
Visualisation	3D map of surface potential and sample topography	3D map of surface potential and sample topography
Oscilloscope	Digital TFT oscilloscope for real time signal	Digital TFT oscilloscope for real time signal
Step size	2 µm (Z); 1.25 µm (X,Y)	0.5 µm (Z); 1.25 µm (X,Y)
Tracking system	Automatic hold of tip-to-sample distance to 0.5 µm	Automatic hold of tip-to-sample distance to 0.5 µm
Detection system	Off-null with parasitic capacity rejection	Off-null with parasitic capacity rejection
Mounting geometry	Normal to sample surface	Normal to sample surface
Mounting flange	DN63 (4.5") OD	DN100 (6") OD
Vacuum compatibility	2 x 10-11 mBar	2 x 10-11 mBar
Digital control of	Tip amplitude, frequency, mean spacing and potential	Tip amplitude, frequency, mean spacing and potential
System includes	Set-up guide, cables and manual	Set-up guide, cables and manual
Averaging	Signal and work function	Signal and work function
Spare tip amplifier	Included	Included
Warranty	12 months	12 months

OTHER PRODUCTS COMPATIBLE WITH THIS SYSTEM*

- Ambient-pressure Photoemission Spectroscopy (APS)
- Surface Photovoltage Spectroscopy (400-1000nm)
- Surface Photovoltage (QTH or LED)
- Heater stage

**Depending on the configuration of the customer's current vacuum chamber*



Technical drawing of UHVSKP2020

KP Technology has been serving the scientific community since 2000 and has grown to be the leading supplier of Kelvin Probe systems worldwide.
Founded with the aim of bringing new surface research tools to the market, we offer a spectrum of dedicated Kelvin Probe systems for work function and energy level measurement. Our systems have been specially developed for applications in a variety of environments, ranging from ambient and controlled atmosphere to Ultra-High Vacuum. Recent developments include a patented dual mode Kelvin Probe and Photoemission Spectroscopy system for measurement of the absolute work function of a material by photoemission in air.
The range of Kelvin Probe systems offered, and the accuracy of the work function resolution provided by our unique systems is unsurpassed by any other Kelvin Probe supplier.
A strong research and development team, coupled with decades of experience in materials research and characterisation has supported the rapid growth KP Technology has experienced over the years. We now service hundreds of companies and research institutes worldwide in their materials research and characterisation requirements.
KP Technology systems have been named in hundreds of research papers and continue to feature in peer reviewed client publications year after year.

KP TECHNOLOGY

Contact us for more information, to request a quotation or to discuss how our systems can support your research.

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KP Technology Ltd. is the proud winner of the Queens Award for Enterprise: Innovation 2018

THE QUEEN'S AWARDS FOR ENTERPRISE 2018