KP TECHNOLOGY

AMBIENT-PRESSURE PHOTOEMISSION SYSTEM WITH NITROGEN ENVIRONMENT

APS04-N2-RH

SYSTEM DESCRIPTION

The Ambient-pressure Photoemission Spectroscopy with Nitrogen Environment system (APS04-N2-RH) allows the measurement of material energy levels under nitrogen or ambient conditions.
Absolute work function (Φ) can be measured with an accuracy of 0.05 eV.
The relative humidity in this system can be automatically controlled from 20% to 90% via the user-friendly software. As well as this, the APS04-N2-RH comes with the KP Technology Scanning Kelvin Probe platform, perfect for plotting the changes in properties over the sample surface.
The APS04-N2-RH incorporates a tuneable deep ultra-violet (UV) source outputting 3.4-7.0 eV, for absolute work function and highest occupied molecular orbital (HOMO) measurements, a surface photovoltage spectroscopy (SPS) module outputting 400 - 1000 nm for V_{oc} and E_g measurements, together with a 50 x 50 mm scanning area for planar relative work function measurements (Fermi level).
This system allows absolute work function determination in the presence of a nitrogen atmosphere.
Our dedicated software allows the user full control of the energy scan ranges, tip potential, signal gain and averaging, cube or square root fitting of the emission data over user-selectable photon energy, normalised light intensity and baseline correction.

FEATURES

- Work function by photoemission in air/N_2
- Work function resolution of ≤ 3 meV
- Automatic control of relative humidity
- Atmospheric control to < 1% oxygen
- 3.4 eV to 7.0 eV energy range
- Surface Photovoltage Spectroscopy (400-1000nm)

APPLICATIONS

- Organic and non-organic semiconductors
- Metals and metal alloys
- Thin films and surface oxides
- Nanotechnology
- Solar cells and organic photovoltaics

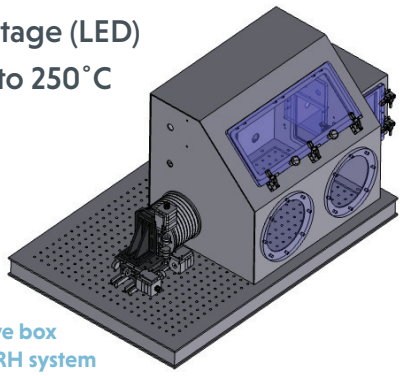
APS04-N2-RH system with ambient pressure photoemission spectroscopy, nitrogen environment and scanning capabilities.

AMBIENT-PRESSURE PHOTOEMISSION SYSTEM WITH NITROGEN ENVIRONMENT

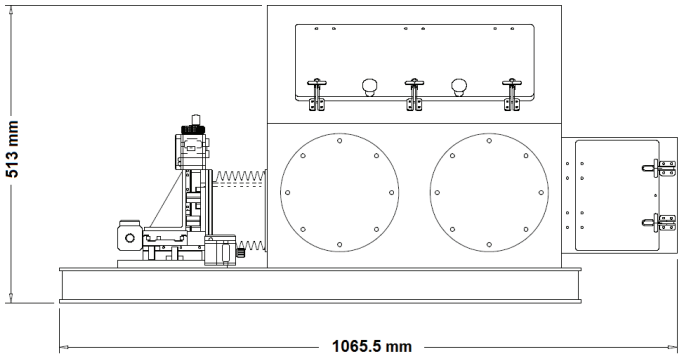
SYSTEM SPECIFICATIONS	APS04-N2-RH
Tip material / diameter	Standard stainless steel 2 mm tip
Absolute work function resolution	≥ 0.05 eV
Contact potential difference resolution	1 - 3 meV
Sample scanning	50 x 50 mm
Atmospheric control	Nitrogen and Relative Humidity control
Relative humidity range	20-85%
Height control	25 mm automatic
Kelvin probe mode and PE mode	CPD and PE measurements
Work function measurement time	PE measurements in < 5 minutes
Optical system	Colour camera with zoom lens for monitoring and positioning
Oscilloscope	Digital TFT oscilloscope for real time signal
Test sample	Au/Al, Silicon Solar Cell and Ag Reference samples
Breadboard footprint	900 mm x 600 mm x 60 mm
Chamber Dimensions	450 mm x 500 mm x 375 mm (84 litres)
Control supplied	PC control with dedicated software
Detection system	Off-null with parasitic capacity rejection
Warranty	12 months

UPGRADES AND ADD-ONS

- Surface Photovoltage (LED)
- Sample Heating to 250˚C



Isometric view of the glove box section of the APS04-N2-RH system



Dimensions of glove box section of APS04-N2-RH system

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