### **KP TECHNOLOGY**

# CONTROLLED ATMOSPHERE KELVIN PROBE SYSTEMS RHC020 • RHC040

## SYSTEM DESCRIPTION

The Relative Humidity Kelvin Probe (RHC) systems are the ideal solution for monitoring samples in a controlled atmosphere for contact potential difference (CPD)/work function ( $\Phi$ ) measurements. Our RHC systems can automatically control the relative humidity within the chamber from 20% to 90% using the easily programmable software.

As well as RH control, the RHC020 and RHC040 Kelvin Probe systems come with the KP Technology Scanning Kelvin Probe platform, perfect for plotting the effect of corrosion over the surface of a sample and providing more insight into corrosion protection and resistance.

The RHC040 also integrates nitrogen atmosphere control with the ability to go down to <1% oxygen within the system.



Effect of relative humidity on aluminium sample over time

## **FEATURES**

- Work function measurement
- Work function resolution of 1-3 meV
- Automatic control of relative humidity
- Atmospheric control to <1% oxygen
- Modular system for upgrades and add-ons: APS, SPS, SPV, sample heating

### **APPLICATIONS**

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



#### Relative humidity system model: RHC040 - with 3-axis scanning capabilities and nitrogen environment

## **CONTROLLED ATMOSPHERE KELVIN PROBE SYSTEMS**

RHC020 • RHC040

SYSTEM SPECIFICATIONS	RHC020	RHC040
Tip material / diameter	2 mm stainless steel tip	2 mm stainless steel tip
Work function resolution	1 - 3 meV	1 - 3 meV
Sample scanning	50 x 50 mm	50 x 50 mm
Relative humidity control	Automatic: 10 - 95%	Automatic: 20 - 85%
Measurement environment	Relative Humidity only	Relative Humidity and nitrogen dispacement of ambient air to ${<}1\%$ oxygen
Optical system	Colour Camera	Colour Camera
Oscilloscope	Digital TFT oscilloscope for real time signal	Digital TFT oscilloscope for real time signal
Test sample	Au / Al Reference sample	Au / Al Reference sample
Breadboard footprint	900 mm x 600 mm	900 mm x 600 mm
Chamber Dimensions	400 mm x 400 mm x 500 mm (80 litres)	450 mm x 500 mm x 375 mm (84 litres)
Control supplied	PC with dedicated software	PC with dedicated software
Detection system	Off-null with parasitic capacity rejection	Off-null with parasitic capacity rejection
Warranty	12 Months	12 Months

## UPGRADES AND ADD-ONS

- Ambient-pressure Photoemission Spectroscopy (APS)
- Surface Photovoltage (QTH or LED)
- Surface Photovoltage Spectroscopy (400-1000nm)
- Sample Heating to 250°C



**Relative humidity** system model: RHC020 with **3-axis scanning** 

#### 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.

## **KPTECHNOLOGY**

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

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winner of the Queens Award

