Kino

A10

Full–Automatic Surface & Interfacial Tensiometer

– Basic and Entry–Level Weight–based Interface Chemical Analytical System

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– Basic and Entry–Level Weight–based Interface Chemical Analytical System

The world first and patented meter that keeps the origin function of analytical balance. It can be used not only as surface tensiometer but also weighting and density balance for solid or liquid to take full advantage of analytical balance and save you money.

Measurement of surface tension (ST) / interface tension (IFT) , analysis of equilibrium and dynamic contact angle (CA / DCA) of solid material, contact angle of powder and fiber, as well as measurement of critical micelle concentration (CMC) of surfactant and more are all characterizations of interface chemistry.

Modularity designed series A10 are equipped with micro–analytical balance, high–precision vertical travel positioning stage controlled by stepper motor, and digital semiconductor temperature sensor. The instrument advantages in such merits as simple operation, high accuracy, complete functions and excellent quality. It has powerful data management and covers three different measurement methods, which enable it to be applied extensively in measurement of dynamic / static surface tension (ST) and interface tension (IFT). International design, global sourcing and professional service provide you comprehensive and professional solution in interface chemistry measurement.

The latest upgraded model A101S embeds professional customized portable control terminal, with which you can control your interface chemistry analytical process more conveniently. All data can be copied into your U–disk and printed out. Unexpected functions are all designed for you.

Applications

	Product Name	Applications
1	Ink, Paint	Analyzing wettability in printing/coating process, R&D and product's quality control
2	Printing	Development of printing plate detergent and its wettability analysis, wettability analysis of film, paper, etc.
3	Film	Wettability analysis and quality control
4	Detergent Industry	Analysis of surfactant's absorption rate and its proper concentrtion (CMC)
5	Chemical Cocatalyst Fluid	Analysis abilities of aggregation and diffusion
6	Cosmetic	Analysis of dispersity, stability and wettability of emulsion and suspending agent
7	Electroplating	Wettability analysis, quality control
8	Pesticide	Development, formula preparation as well as wettability analysis of additive
9	Nanofiber and Powder	Analyzing hydrophilic or super–hydrophobic contact angle and dynamic contact angle
10	Petroleum	Indicating interface tension in secondary and tertiary oil recovery, quality control of displacement agent , degradable ingredients analysis
11	Textile	Analysis of contact angle, wettability, surface tension and adhesive force
12	Pharmaceutical & Food	Analysis of surface tension, wettability, surface tension of can coating as well as cleanness analysis
13	Power	Surface tension analysis of transformer oil and insulating oil, as well as contact angle analysis of fibre bundle
14	Surfactant	Measurement of surface tension and critical micelle concentration (CMC)

Performance Features

World first and patented meter with multi–function

- The world first and patented meter that keeps the origin function of analytical balance.
- To be used not only as surface tensiometer but also weighting and density balance for solid or liquid
- You can take full advantage of analytical balance and save you money

Leading design of weighing sensor

- Electromagnetic force balance sensor technology, expertise in micro–weighing analysis.
- Better temperature drifting correction, zero tracking technology.
- Data processing with more reliable values.
- World's first rear sensor (A101, A606), useful for volatile & corrosive sample liquid analysis, e.g. liquid ammonia and acid substances, etc.
- Double–microchip processing technology, with better data–handling capacity and higher speed of processing.
- Upgradeable software, customized to meet your special test requirements.

High–precision sample positioning stage and temperature control system

- Stepper motor controlled high–precision vertical travel positioning stage, with resolution up to 0.1μm and repetitive–positioning accuracy up to 2μm.
- Digital temperature sensor made of semiconductor with temperature resolution of 0.01℃ and absolute temperature accuracy of down to 0.0625℃.
- Sample chamber controlled by water circulator offers best temperature control.

CAST® 1.0 powerful functions and user–friendly interface

- More methods available for you to make a comprehensive solution.
- USA KINO exclusively provides 3 methods, including classical Wihelmy plate method (slide Wihelmy plate method), modified Wihelmy plate method and DuNoüy ring method.

- USA KINO's innovative 3rd generation Wilhelmy plate method used Young–Laplace equation correction, in which method plate needn't be immersed and withdrawn in measuring process (such method is called zero buoyance method).
  It can be used for measurement of dynamic & static surface / interface tension, especially for viscosity sample, which enriches measurement technologies of interface chemistry.
- Professional L–G / L–L interface detection technology
- Professional FK buoyancy correction technology
- Professional zero point correction and value preset technology

Comfortable operation process

- Universal USB2.0 communication interface provides stronger compatibility, higher speed, and convenient access to laptops and new–model desktops without RS232 interface.
- One–key zeroing and full–auto measurement with simple and convenient operation, to minimize errors caused by human operation.
- Humanizing pre–wetting function, designed for oily sample measurement.
  Some samples can't well wetting Wilhelmy plate or DuNoüy ring for the first time, especially for some oily sample. Our uniquely designed pre–wetting function can provide a more humanized solution for you in these cases.
- Multiple self–calibration functions to enhance measurement reliability
  Series A10 are equipped with both weighing sensor calibration and self–calibration function for sensing interface (Wilhelmy plate and DuNoüy ring), which is much better than other manufacturers'. It can enable you to control reliability of measured value more effectively.

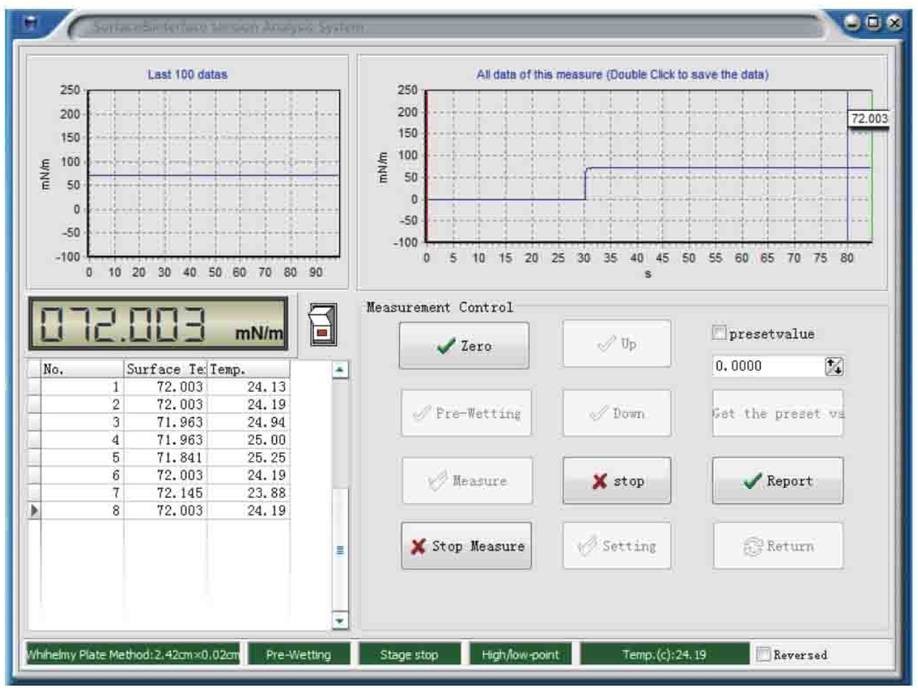
Managing all dynamic live data

- Software manages all live data that balance acquired. All data can be query and modified as well as exported to Excel.
- Real–time display of data graph, with observation of interface tension changes.

  The function provides unparalleled convenience in measuring dynamic surface tension of time–dependent, medium–high viscosity samples, and volatile liquid or mixture.

Powerful database management with data storage, query and modification

- Real–time data storage and display, historical data searching, and eigenvalue modification are all available with CAST® 1.0.
- CAST® 1.0 saves all measured data of dynamic value automatically and exports them into Excel.



Technical Specifications

Hardware Specifications

1	Weighing Sensor	(1) Measuring Range	0–999.999mN/m
		(2) Resolution	0.001mN/m
		(3) Weighing Readability	0.04mN/m
		(4) Absolute Error	±0.2mN/m (Reference secondary distilled water)
		(5) Data Update Speed	Max.2 data/s
		(6) Data Processing	Double–chip processor
		(7) Zeroing Method	One–key zeroing with presetting functions
		(8) Weighing range of balance：max 210g，Readability：0.1mg	
		(9) Density balance for solid or liquid (For option)	
2	Sample Stage Control	(1) Lifting Range	0－50mm
		(2) Lifting Accuracy	Travel resolution:0.007 μm; Repetitive positioning: 0.5 μm
		(3) Control of Lifting Speed	Variable speed
		(4) Control Mode	Software–controlled via USB interface for better compatibility
		(5) Positioning Readout	Read by software encoder
3	Communication Interface	USB2.0 interface can be directly connected to laptops, without problem of compatibility of RS232	
4	Temperature Readout (Relevant accessories should be optional purchased)	(1) Temp. Sensor	Digital semiconductor temperature sensor made in U.S.A.
		(2) Temp. Calibration	Self–calibration
		(3) Accuracy	0.01℃
		(4) Readout Mode	Automatically read by software

$$\sigma \cdot \left\{ \frac{1}{R_1} + \frac{1}{R_2} \right\} = \sigma \cdot \left\{ \frac{\sin\phi}{X} + \frac{1}{R_1} \right\}$$

Reference Specifications of CAST® 1.0

1	Measuring Method	3 methods, includes: ✓ Modified Wilhelmy plate method ✓ Classical Wilhelmy plate method ✓ DuNoüy ring method
2	Measuring Mode	Both automatic and manual mode in measurement of surface / interface tension
3	Calibration	Self–calibration of platinum plate & platinum ring and weighing sensor calibration
4	Pre–wetting Function	Providing human–oriented pre–wetting function
5	Interface Detection	Detection of interface of liquid–gas/liquid–liquid automatically by software
6	Density Correction	Density correction with preset function for measurement of interface tension
7	Buoyancy Correction	3 kinds of buoyancy correction modes, professional FK correction factor
8	Database Management	Real–time graph, storage and query of measured data and data Excel exportable

General Specifications

1	Dimensions	450L×210W×300Hmm
2	Weight	10Kg
3	Power Supply	AC 100–240 50/60Hz
4	Power	40W

Optional Accessories

DuNoüy Ring
Conforming to the international standards, for measuring surface / interface tension with established measuring method

Temperature sensor
High–precision digital semiconductor temperature sensor with self–calibration function
Resolution: 0.01℃
Measuring range: –50–150℃

Thermostating sample chamber
Water circulator connected to control temperature of samples.
Range: 0–100℃ or –50–200℃ for option

Water circulator
Temperature range:–5–100℃
Accuracy: 0.1℃

Other specific accessories can be customized

Special Statements

- The above production pictures and technical specifications are subject to change without notice; and the latest confirmed product information shall prevail.
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State of the art interface chemical analytical instruments from USA KINO provide you professional solutions. For more information, please visit
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