

ramé-hart Model 400

Contact Angle Goniometer and Tensiometer



Measure

Contact angle
Surface energy
Surface tension
Interfacial tension

The Model 400 is designed specifically for wafer samples and includes an 8-inch wafer support, upgradeable to 12 inches. Included DROPimage Pro provides flexible contact angle and surface tension measurement and eight tools for surface energy calculations. In-software control of the Automated Dispensing System is supported. Its durable construction and precision positioning are built to last for decades.

DROPimage Pro

Easy-To-Use Software

All-New U6 Camera

High-Resolution, High-Speed

Rotating Wafer Support

8" wafer is standard, upgrade up to 12"

Instrument Specifications

Specification	Details
Model Number	400-U6
Surface Characteristics	Contact angle, surface energy, surface tension, and interfacial tension
Stage	Advanced 3-axis stage with fine adjustment
Stage Size	51 x 76 mm (2.01 x 2.99 in)
Backlight Illumination	LED Fiber Optic Illuminator
Pre-Installed Software	DROPImage Pro
Power Supply	110 - 240 VAC, 50-60 Hz
Instrument Dimensions	616 x 267 x 508 mm (24.25 x 10.51 x 20.00 in)
Instrument Weight	6.10 kg
Warranty	One-year warranty included with every instrument. Extended warranties can be purchased upon request



A complete turn-key system

Supplied with a PC, pre-installed and configured software, and the components and tools needed to set up and operate the instrument.

Camera Specifications

U6 Camera Standard - included

Specification	Details
Camera Resolution	1920 × 1200 pixels (2.3 MP)
Maximum Camera Frame Rate	2320 frames per second
Default Camera Frame Rate (full window)	160 frames per second
Sensor Format	1/2.3-inch
Pixel Bits	Mono 8-bit
Pixel Bits (maximum)	Mono 12-bit
Camera Interface/Power Supply	USB 3.0
Signal-to-Noise at 541 nm	40.2 dB
Dark Noise at 541 nm	2.5 electrons

U4 Camera Optional - available upon request

Specification	Details
Camera Resolution	720 × 540 pixels (0.3 MP)
Maximum Camera Frame Rate	5400 frames per second
Default Camera Frame Rate (full window)	520 frames per second
Sensor Format	1/2.9-inch
Pixel Bits	Mono 8-bit
Pixel Bits (maximum)	Mono 12-bit
Camera Interface/Power Supply	USB 3.0
Signal-to-Noise at 541 nm	43.1 dB
Dark Noise at 541 nm	2.9 electrons

Software Capabilities

Capability	Details
Software Included	DROPImage Pro
Supported Operating Systems	Windows 11
Software Licensing	Pre-installed software comes perpetually licensed to your organization and includes one year of upgrades and priority support
Static Contact Angle Range	0-180 deg
Contact Angle Accuracy	+/-0.1 deg
Contact Angle Resolution	+/-0.1 deg
Continuous Reporting	Supported for contact angle and surface tension measurements
Surface Energy Tools	Owens-Wendt Geometric-Mean, Wu Harmonic-Mean, Rabel Multi-Liquid, Kwok One-Liquid, van Oss Acid-Base, Schultz Solid-Liquid-Liquid, Work of Adhesion, and Zisman's Plot
Surface Tension Support	Measures both surface tension and interfacial tension
Surface Tension Range	0.01-2500 mN/m
Surface Tension Accuracy	+/-0.01 mN/m
Upgrade Path	Upgradeable to DROPImage Advanced without additional hardware

Requires installation of camera driver, which is included with software.

Automated accessory control requires the corresponding compatible hardware. Unless listed as included, accessories are available separately.

Accessory Compatibility

Choose compatible accessories to suit your application.

Accessory	Part Number	Compatibility	Description
Automated Dispensing System	100-22	Yes	In-software dispensing control supported
8" Rotating Wafer Support	100-21-08	Included	Rotating wafer support sized for 8" diameter wafers
Automated Tilting Base	100-25-A	*	Requires upgrade to DROPImage Advanced
Environmental Fixture	100-14	Yes	Supported fixture for ambient environmental protection and liquid/liquid studies
Peltier Environmental Chamber	100-30	Yes	Supported chamber for controlled temperature experiments from -50°C to 150°C
Heated Environmental Cell	100-33	Yes	Supported enclosure for controlled temperature experiments from ambient to 300°C
Hot Plate	100-33-HP	Yes	Supported heating plate for controlled temperature experiments from ambient to 300°C
Overhead Optical Imaging Kit	100-31	*	Requires upgrade to DROPImage Advanced
Oscillator	100-28	*	Requires upgrade to DROPImage Advanced and use with the Automated Dispensing System
Vacuum Chuck Support	100-21-VC	Yes	Vacuum chuck support with 6" or 8" diameter options available
Manual Tilting Base	100-25-M	Yes	Supported for advancing and receding angles, roll-off angle, and contact angle hysteresis

Accessories are optional unless specifically identified as included. Software upgrades or additional hardware may be required as noted.

What's Included

Every system is supplied ready for installation and first-time setup.

• 21-inch Optical Bench	• U6 Camera (standard)
• 3-Axis Stage Support	• Leveling Specimen Stage
• Fiber Optic Illuminator	• Manual Syringe Assembly
• 8" Wafer Support	• PC with Pre-installed Software
• DROPimage Pro	• User Manual
• Calibration Tool	• Storage Cover
• All Necessary Cables and Setup Tools	

Configuration, compatible accessories, and software upgrades can be discussed with our sales team.

Contact **ramé-hart instrument co.**

SALES

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