

Drop Shape Analyzer

DSA100W

Specifications



Product group specifications

DSA100W

Camera CF04 (standard)

Connection	USB 3.0
Resolution	1920 × 1200 px
Frame rate	2300 fps
Dark noise	7 electrons
Dynamic range	73 dB

5 megapixel high speed camera CF10 (optional)

Connection	USB 3.0
Resolution	2592 × 2048 px
Frame rate	3450 fps
Dark noise	9.3 electrons
Dynamic range	60 dB

Optics

Focus	manual
Zoom	7× zoom, manual
View angle	±4°
Field of view	with CF04: 3.9 × 3.9 to 24.7 × 24.7 mm with CF10: 7.1 × 5.6 to 49.8 × 39.4 mm
Resolution	with CF04: 3.1 to 21.7 μm with CF10: 2.7 to 19.2 μm

Illumination

Type	high power monochromatic LED
Wave length, dominant	470 nm
Field of light	46 mm × 46 mm (D × H)

Dosing system

Dosing	software-controlled
Drop deposition	software-controlled
Syringes, volume	glass (450 μL), disposable (900 μL)
Resolution	20 nL
Speed	0.004 to 25 μL/s

Product group specifications

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Liquid Needle double pressure dosing (optional)

Control	software-controlled
Speed	fixed (fast jet)
Resolution	0.1 μ L
Cartridge, volume	disposable (1 mL)

Stages	y-axis		z-axis		rotation axis
Control	software-controlled		manual	software-controlled (optional)	software-controlled
Range	170 mm		45 mm	38 mm	360°
Resolution	10 μ m		16 mm/turn	10 μ m	0.1°
Accuracy	100 μ m		-	100 μ m	1°

Tilting (optional)

Type	external
Control	software-controlled
Range	0 to 90°
Resolution	0.1°
Accuracy	1°

Software

ADVANCE

Contact angle	recommended
Surface free energy of solids	recommended
Interfacial and surface tension of liquids	pendant drop, rising drop (optional) Constrained Sessile Drop (optional)

Software languages

Chinese (simplified), English, French, German, Japanese, Korean, Portuguese, Russian, Spanish

Measurement specifications

DSA100W

Sessile drop/captive bubble

Result	contact angle
Range (software-based)	0 to 180°
Resolution (software-based)	0.01°
Accuracy (instrument based)	0.1°
Models	conic section, polynomial, circle, Young-Laplace, height-width
Types	advancing, receding, static, dynamic, tilting

Surface free energy of solids

Results	surface free energy (SFE), polar & disperse part, acid & base part, H-bond part
Models	equation of state, Zisman, Fowkes, Wu, Owens-Wendt-Rabel-Kaelble, extended Fowkes, acid-base theory

Pendant drop/rising drop

Results	interfacial and surface tension
Range (software-based)	0.01 to 2000 mN/m
Resolution (software-based)	0.01 mN/m
Model	Young-Laplace
Types	static, dynamic

General specifications

DSA100W

Sample dimensions

Maximum sample space 320 mm × ∞ × 275 mm (W × D × H; without axes)

Temperature measurement

Range	-50 to 400 °C
Resolution	0.1 °C
Precision	0.1 °C
Accuracy	1/3 DIN B (±0.1 °C at 0 °C to ±0.8 °C at 400 °C)
External sensor	2 connectors (PT100)
Location	environment air

Housing and peripherals

Compartment	test liquids protected against light
Needle protection shield	yes
Camera und optics housing	yes
Levelling	yes

Environment

Operating temperature	10 to 40 °C
Humidity	without condensation

Instrument dimensions

Footprint	555 mm × 375 mm (W × D)
Height	490 mm
Weight (without accessories)	24 kg

Power supply

Voltage (AC)	88 to 264 V
Power consumption	100 W
Frequency	50 to 60 Hz

Interfaces

PC	USB 3.0
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