

# 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	0.1 μL
Speed	0.02 to 25 μL/s

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#### Liquid Needle double pressure dosing (optional)

Control	software-controlled
Speed	fixed (fast jet)
Resolution	0.1 µL
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 µm		16 mm/turn	10 µm	0.1°
Accuracy	100 µm		-	100 µm	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)

## 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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