

Drop Shape Analyzer

DSA25

Specifications



Product group specifications

DSA25B

DSA25S

DSA25E

Camera system CF04 (standard)

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

High speed camera system CF06 (optional)

Connection	USB 3.0
Resolution	640 × 480 px
Frame rate	3400 fps
Dark noise	10.5 electrons
Dynamic range	56.6 dB

Optics

Focus	manual
Zoom	6.5 × zoom, manual
View angle	±3°
Field of view	with CF04: 3.2 × 3.2 to 18.5 × 18.5 mm with CF06: 1.4 × 1.0 to 8.1 × 6 mm
Resolution	with CF04: 2.5 to 16.2 μm with CF06: 2.1 to 13.3 μm

Illumination

Type	high power monochromatic LED
Wave length, dominant	470 nm
Field of light	Ø 42 mm

Product group specifications	DSA25B	DSA25S	DSA25E
Dosing system			
Syringe dosing	1 × manual	1 × software-controlled	1 × software-controlled
Liquid Needle double pressure dosing	optional	optional	1 × included
Drop deposition (syringe dosing)		manual	
Syringes, volume	glass (500 µL), disposable (1 mL)	glass (1×, 450 µL), disposable (900 µL)	glass (1×, 450 µL), disposable (900 µL)
Resolution (syringe dosing)	-	0.1 µL	0.1 µL
Speed (syringe dosing)	-	0.02 to 25 µL/s	0.02 to 25 µL/s
Liquid Needle double pressure dosing			
Control		software-controlled	
Speed		fixed (fast jet)	
Resolution		0.1 µL	
Cartridge, volume		disposable, 1 mL	
Stages			
		z-axis, horizontally slidable	
Control		manual	
Length		45 mm	
Tilting (optional)			
Type		external	
Control		software-controlled	
Range		0 to 90°	
Resolution		0.01°	
Accuracy		0.5°	
Software			
		ADVANCE	
Contact angle	recommended	recommended	recommended
Surface free energy of solids	optional	recommended	recommended
Interfacial and surface tension of liquids	pendant drop, rising drop (optional) Constrained Sessile Drop (optional)	pendant drop, rising drop (optional) Constrained Sessile Drop (optional)	pendant drop, rising drop (recomm.) Constrained Sessile Drop (optional)
Measurement specifications			
	DSA25B	DSA25S	DSA25E
Sessile drop/captive bubble			
Result		contact angle (CA)	
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	static, dynamic, tilting	advancing, receding, static, dynamic, tilting	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, Schultz-1, extended Fowkes, acid-base theory	
Pendant drop/rising drop			
Results		interfacial tension (IFT)/surface tension (SFT)	
Range (software-based)		0.01 to 2000 mN/m	
Resolution (software-based)		0.01 mN/m	
Model		Young-Laplace	
Types		static, dynamic	

General specifications	DSA25B	DSA25S	DSA25E
Sample dimensions			
Maximum sample space	320 mm × ∞ × 165 mm (W × D × H; without axes)		
Temperature control			
Equipment	temperature-controlled sample stage, chambers, cuvette		
Chamber types	liquid liquid (large) Peltier electrical		
Range	5 to 90 °C -10 to 130 °C -30 to 160 °C 50 to 400 °C		
Maximum sample size	132 mm × 132 mm × 27 mm (W × D × H; large liquid chamber)		
Resolution	0.1 °C		
Flow-through thermostat	with liquid		
Inert gas	yes		
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	retrofitable	2 connectors (PT100)	2 connectors (PT100)
Locations	sample stage, chamber, cuvette		
Housing and peripherals			
Levelling	yes		
Environment			
Operating temperature	10 to 40 °C		
Humidity	without condensation		
Instrument dimensions			
Footprint	610 mm × 250 mm (W × D)		
Height	430 mm		
Weight (without accessories)	10 kg		
Power supply			
Voltage (AC)	88 to 264 V		
Power consumption	40 W	100 W	100 W
Frequency	50 to 60 Hz		
Interfaces			
PC	USB 3.0		