

DROP SHAPE ANALYZER – DSA25

SPECIFICATIONS



Product group specifications	DSA25B	DSA25S	DSA25E
Camera system			
Connection		USB 3.0	
Resolution		CF04: 1920 x 1200 px CF06 ¹⁾ : 640 x 480 px	
Frame rate		CF04: 2300 fps CF06: 3400 fps	
Dark noise		CF04: 7 electrons CF06: 10.5 electrons	
Dynamic range		CF04: 73 dB CF06: 56.6 dB	
Optics			
Focus		manual	
Zoom		6.5x zoom, manual	
View angle		±3°	
Field of view		CF04: 3.2 mm x 3.2 mm to 18.5 mm x 18.5 mm CF06 ¹⁾ : 1.4 mm x 1 mm to 8.1 mm x 6 mm	
Resolution		CF04: 2.5 to 16.2 μm CF06 ¹⁾ : 2.1 to 13.3 μm	
Illumination			
Type		high power monochromatic LED	
Wave length, dominant		470 nm	
Field of light		Ø 42 mm	
Dosing system			
Dosing	manual	software-controlled	1x software-controlled 1x Double pressure dosing system
Drop deposition		manual	
Syringes, volume	glass (500 μL), disposable (1 mL)	glass (1x, 450 μL), disposable (900 μL)	glass (1x, 450 μL), disposable 900 μL
Resolution	-	0.1 μL with glass syringe	0.1 μL with glass syringe
Speed		10 to 900 μL/min with glass syringe	10 to 900 μL/min with glass syringe
Double pressure dosing system ¹⁾			
Drop deposition		software-controlled	
Cartridge, volume		disposable (1 mL)	
Resolution		0.1 μL	
Speed		fixed	
Stages ²⁾			
Control		manual	
Length		45 mm	

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Tilting ¹⁾			
Type		external	
Control		software-controlled	
Range		0 to 90°	
Resolution		0.01°	
Accuracy		0.5°	
Software			
ADVANCE		contact angle	
		surface free energy of solids ³⁾	
		interfacial and surface tension of liquids ^{3), 4)}	

Measurement specifications	DSA25B	DSA25S	DSA25E
Sessile drop/Captive bubble			
Result		contact angle (CA)	
Range ⁵⁾		0 to 180°	
Resolution ⁵⁾		0.01°	
Accuracy ⁶⁾		0.1°	
Models		conic section, polynom, circle, Young-Laplace, height-width	
Types ⁷⁾		advancing, receding, static, dynamic, tilting	
Surface free energy of solids ³⁾			
Result		surface free energy (SFE)	
Models		equation of state, Zisman, Fowkes, Wu, Owens-Wendt-Rabel-Kaelble, Schultz-1, extended Fowkes, acid-base theory	
Pendant drop/Rising drop ^{3), 4)}			
Results		interfacial tension (IFT)/surface tension (SFT)	
Range ⁵⁾		0.01 to 2000 mN/m	
Resolution ⁵⁾		0.01 mN/m	
Model		Young-Laplace	
Types		static, dynamic	

¹⁾ optional for DSA25B & DSA25S

²⁾ movable in x- and y-direction

³⁾ optional for DSA25B

⁴⁾ optional for DSA25S

⁵⁾ software-based

⁶⁾ instrument-based

⁷⁾ additional accessories may be required

General specifications	DSA25B	DSA25S	DSA25E
Sample dimensions			
Maximum sample space ⁸⁾	320 mm × ∞ × 165 mm (W × D × H)		
Temperature control			
Equipment	temperature-controlled sample stage, chambers, cuvette		
Types	liquid, electrical, Peltier		
Range	-30 ⁹⁾ to 400 °C ¹⁰⁾		
Maximum sample size	132 mm × 132 mm × 27 mm (W × D × H) ¹¹⁾		
Resolution	0.1 K		
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	2 connectors (PT100) ¹²⁾	2 connectors (PT100) ¹²⁾	2 connectors (PT100)
Locations	sample stage, chamber, cuvette		
Housing and peripherals			
Control keyboard	PC keyboard for ADVANCE software operation available (KB20)		
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	88 to 264 VAC		
Power consumption	40 W	100 W	100 W
Frequency	50 to 60 Hz		
Interfaces			
PC	USB 3.0		

⁸⁾ without axes

⁹⁾ with Tempering Chamber – TC40

¹⁰⁾ with Tempering Chamber – TC21

¹¹⁾ with Tempering Chamber – TC11

¹²⁾ retrofittable