

DROP SHAPE ANALYZER – DSA25

SPECIFICATIONS



Product group specifications	DSA25B	DSA25S	DSA25E
Camera system			
Connection		USB 3.0	
Performance		CF03: 150 fps at 1200 × 1200 px 500 fps at 1200 × 350 px 800 fps at 1200 × 200 px 2000 fps at 1200 × 60 px	
		CF06 ¹⁾ : up to 3400 fps at 640 × 50 px	
Dark noise		CF03: 7 electrons CF06: 10.5 electrons	
Dynamic range		CF03: 73 dB CF06: 56.6 dB	
Optics			
Focus		manual	
Zoom	fixed focal length	6.5× zoom, manual	6.5× zoom, manual
View angle		±3°	
Field of view	CF03: 15.2 mm × 15.2 mm CF06 ¹⁾ : 6.6 mm × 5 mm	CF03: 3.2 mm × 3.2 mm to 18.5 mm × 18.5 mm CF06 ¹⁾ : 1.4 mm × 1 mm to 8.1 mm × 6 mm	CF03: 3.2 mm × 3.2 mm to 18.5 mm × 18.5 mm CF06 ¹⁾ : 1.4 mm × 1 mm to 8.1 mm × 6 mm
Resolution	CF03: 13.3 μm CF06 ¹⁾ : 10.9 μm	CF03: 2.5 to 16.2 μm CF06 ¹⁾ : 2.1 to 13.3 μm	CF03: 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	2x software-controlled
Drop deposition		manual	
Syringes, volume	glass (1×, 200 μL), disposable (400 μL) ¹⁾	glass (1×, 450 μL), disposable (900 μL) ¹⁾	glass (1×, 450 μL), disposable 900 μL) ¹⁾
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	

Product group specifications	DSA25B	DSA25S	DSA25E
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⁾		0.3°	
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 states, Zisman, Fowkes, Wu, Owens-Wendt-Rabel-Kaelble, Schultz-1, Schultz-2, 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	
Accuracy ⁶⁾		0.3 mN/m	
Model		Young-Laplace	
Types		static, dynamic	

¹⁾ optional

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