Drop Shape Analyzer

DSA25

Specifications

Drop Shape Analyzer – DSA25E
(Expert configuration)

Product group specifications	DSA25B	DSA25S	DSA25E
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 (standard)			
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 CF10: 5.5 × 4.3 to 36.1 × 28.6 mm	
Resolution		with CF04: 2.5 to 16.2 µm with CF10: 2.1 to 13.9 µm	
Optics with extender lense (optional)			
Zoom		2× zoom, fixed	
Field of view		with CF04: 1.5 × 1.5 to 10.1 × 10.1 mm with CF10: 2.7 × 2.1 to 18.0 × 14.2 mm	
Resolution		with CF04: 1.3 to 8.4 µm with CF10: 1.0 to 7.0 µm	

Product group specifications	DSA25B	DSA25S	DSA25E
Illumination			
Type	high power monochromatic LED		
Wave length, dominant	470 nm		
Field of light	Ø 42 mm		
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)	-	20 nL	20 nL
Speed (syringe dosing)	-	0.004 to 25 µL/s	0.004 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)
Fiber contact angle	Meniscus (optional)	Meniscus (optional)	Meniscus (optional)
Software languages			
	Chinese (simplified), English, French, German, Japanese, Korean, Portuguese, Russian, Spanish		

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		

Measurement specifications	DSA25B	DSA25S	DSA25E
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		
Meniscus			
Results	contact angle		
Range (software-based)	10 to 90°		
Resolution (software-based)	0,01°		
Minimum fiber diameter	65 µm, 40 µm (with optional extender)		
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	retrofittable	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		