Drop Shape Analyzer

DSA30

Specifications

Product group specifications	DSA30B	DSA30S	DSA30E
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	

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Dosing system			
Syringe dosing	1 × manual	1 × software-controlled	2 × software-controlled
Liquid Needle double pressure dosing	optional	optional	1 × included
Multi-dosing system (optional)		up to 4 liquids software-controlled	
Drop deposition (syringe dosing)	manual	software-controlled	software-controlled
Syringes, volume	glass (500 µL), disposable (1 mL)	glass (1×, 450 µL), disposable (900 µL)	glass (2×, 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 (default setup)	x-axis	y-axis	z-axis	x-axis	y-axis	z-axis	x-axis	y-axis	z-axis
Control	-	-	manual	manual			software-controlled		
Length	-	-	45 mm	100 mm	100 mm	45 mm	100 mm	100 mm	38 mm
Resolution	-	-	16 mm/turn	2 mm/turn	2 mm/turn	16 mm/turn	10 µm		
Accuracy	-	-	-	-	-	-	100 µm		

Tilting (optional)			
Type	internal		
Control	software-controlled		
Range	0 to 90°		
Resolution	0.01°		
Accuracy	0.3°		
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	DSA30B	DSA30S	DSA30E
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			
Result	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 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	DSA30B	DSA30S	DSA30E
Sample dimensions			
Maximum sample space		320 mm × ∞ × 275 mm (W × D × H, without axes)	
Temperature control			
Equipment		temperature-controlled sample stage, chambers, cuvette	
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		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		610 mm	
Weight (without accessories)		10 kg	
Power supply			
Voltage (AC)		88 to 264 V	
Power consumption		100 W	
Frequency		50 to 60 Hz	
Interfaces			
PC		USB 3.0	