

# Drop Shape Analyzer

## DSA25

### Specifications



Drop Shape Analyzer – DSA25E  
(Expert configuration)



Product group specifications	DSA25B	DSA25S	DSA25E
<b>Camera CF04 (standard)</b>			
Connection		USB 3.0	
Resolution		1920 × 1200 px	
Frame rate		up to 2300 fps	
Dark noise		7 electrons	
Dynamic range		73 dB	
<b>5 megapixel high speed camera CF10 (optional)</b>			
Connection		USB 3.0	
Resolution		2592 × 2048 px	
Frame rate		up to 3450 fps	
Dark noise		9.3 electrons	
Dynamic range		60 dB	
<b>Optics (standard)</b>			
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	
<b>Optics with extender lens (optional)</b>			
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
<b>Illumination</b>			
Type	high power monochromatic LED		
Wave length, dominant	470 nm		
Field of light	Ø 42 mm		
<b>Dosing system</b>			
Syringe dosing	1 × manual	1 × software-controlled	1 × software-controlled
Liquid Needle double pressure dosing	optional	optional	1 × included
Stood-up Drop pressure dosing	optional		
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
<b>Liquid Needle double pressure dosing</b>			
Control	software-controlled		
Speed	fixed (fast jet)		
Resolution	0.1 µL		
Cartridge, volume	disposable, 1 mL		
<b>Stood-up Drop pressure dosing</b>			
Control	software-controlled		
Speed	fixed (fast jet)		
Volume	fixed (≈ 0.4 µL)		
Cartridge, volume	disposable, 1 mL		
<b>Stages</b>			
Control	z-axis, horizontally slidable		
Length	manual 45 mm		
<b>Tilting (optional)</b>			
Type	external		
Control	software-controlled		
Range	0 to 90°		
Resolution	0.01°		
Accuracy	0.5°		
<b>Software</b>			
Software	ADVANCE		
Contact angle	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)
Receded contact angle	Stood-up Drop (optional)		
Fiber contact angle	Meniscus (optional)		
<b>Software languages</b>			
Chinese (simplified), English, French, German, Japanese, Korean, Portuguese, Russian, Spanish			

Measurement specifications	DSA25B	DSA25S	DSA25E
<b>Sessile drop/captive bubble</b>			
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
<b>Surface free energy of solids</b>			
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		
<b>Pendant drop/rising drop</b>			
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		
<b>Stood-up Drop</b>			
Results	receded contact angle		
Range (software-based)	0-180°		
Resolution (software-based)	0.01°		
Models	conic section, polynomial, circle, Young-Laplace, height-width		
<b>Meniscus</b>			
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		
<b>General specifications</b>			
<b>Sample dimensions</b>			
Maximum sample space	320 mm × ∞ × 165 mm (W × D × H; without axes)		
<b>Temperature control</b>			
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		
<b>Temperature measurement</b>			
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		

General specifications	DSA25B	DSA25S	DSA25E
<b>Housing and peripherals</b>			
Levelling		yes	
<b>Environment</b>			
Operating temperature		10 to 40 °C	
Humidity		without condensation	
<b>Instrument dimensions</b>			
Footprint		610 mm × 250 mm (W × D)	
Height		430 mm	
Weight (without accessories)		10 kg	
<b>Power supply</b>			
Voltage (AC)		88 to 264 V	
Power consumption	40 W	100 W	100 W
Frequency		50 to 60 Hz	
<b>Interfaces</b>			
PC		USB 3.0	