

Drop Shape Analyzer

DSA100

Specifications



Product group specifications

DSA100B

DSA100S

DSA100E

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	7× zoom, manual
View angle	±4°
Field of view	with CF04: 3.9 × 3.9 to 24.7 × 24.7 mm with CF06: 1.7 × 1.3 to 10.8 × 8.1 mm
Resolution	with CF04: 3.1 to 21.7 μm with CF06: 2.5 to 17.8 μm

Illumination

Type	high power monochromatic LED
Wave length, dominant	470 nm
Field of light	46 mm × 46 mm (D × H)

Product group specifications	DSA100B			DSA100S			DSA100E		
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 8 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)									
Types	internal						external		
Control				software-controlled					
Range				0 to 90°					
Resolution	0.01°						0.1°		
Accuracy	0.3°						1°		
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									
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									
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					
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	DSA100B	DSA100S	DSA100E
Sample dimensions			
Maximum sample space	320 mm × ∞ × 275 mm (W × D × H, without axes)		
Temperature control (optional)			
Equipment	temperature-controlled sample stage, chamber, 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 space	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			
Compartment	test liquids protected against light		
Needle protection shield	yes		
Camera und optics housing	yes		
Levelling	yes		
Environment			
Operating temperature	10 to 40 °C		
Humidity	without condensation		
Instrument dimensions			
Footprint	555 mm × 375 mm (W × D)		
Height	490 mm		
Weight (without accessories)	24 kg		
Power supply			
Voltage (AC)	88 to 264 V		
Power consumption	100 W		
Frequency	50 to 60 Hz		
Interfaces			
PC	USB 3.0		