

DROP SHAPE ANALYZER – DSA100

SPECIFICATIONS



Product group specifications	DSA100B			DSA100S			DSA100E		
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			manual			software-controlled		
Zoom	7× zoom, manual			7× zoom, manual			7× zoom, software-controlled		
View angle	±4°								
Field of view	CF03: 3.9 mm × 3.9 mm to 24.7 mm × 24.7 mm CF06 ¹⁾ : 1.7 mm × 1.3 mm to 10.8 mm × 8.1 mm								
Resolution	CF03: 3.1 to 21.7 μm CF06 ¹⁾ : 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)								
Dosing system									
Dosing	manual			software-controlled			software-controlled (4×) + manual (1×); up to 8 dosing units possible		
Drop deposition	manual			software-controlled			software-controlled		
Syringes, volume	glass (500 μL), disposable (1 mL)			glass (450 μL), disposable (900 μL)			glass (450 μL), disposable (3 mL)		
Resolution	-			0.1 μL with glass syringe			0.1 μL with glass syringe		
Speed	-			10 to 1400 μL/min			10 to 1400 μL/min		
Double pressure dosing system ¹⁾									
Drop deposition	software-controlled								
Cartridge, volume	disposable (1 mL)								
Resolution	0.1 μL								
Speed	fixed								
Stages									
	x-axis	y-axis	z-axis	x-axis ²⁾	y-axis ²⁾	z-axis	x-axis ^{2), 3)}	y-axis ^{2), 3)}	z-axis ^{2), 3)}
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		

Product group specifications	DSA100B	DSA100S	DSA100E
Tilting			
Types	internal		external ¹⁾
Control		software-controlled	
Range		0 to 90°	
Resolution	0.01°		0.1°
Accuracy	0.3°		1°
Software			
ADVANCE		contact angle	
		surface free energy of solids ²⁾	
		interfacial and surface tension of liquids ^{2),3)}	

Measurement specifications	DSA100B	DSA100S	DSA100E
Sessile drop/Captive bubble			
Result		contact angle	
Range ⁴⁾		0 to 180°	
Resolution ⁴⁾		0.01°	
Accuracy ⁵⁾		0.3°	
Models		conic section, polynom, circle, Young-Laplace, height-width	
Types ⁶⁾		advancing, receding, static, dynamic, tilting	
Surface free energy of solids ²⁾			
Result		surface free energy	
Models		equation of states, Zisman, Fowkes, Wu, Owens-Wendt-Rabel-Kaelble, Schultz-1, Schultz-2, extended Fowkes, acid-base theory	
Pendant drop/Rising drop ^{2),3)}			
Results		interfacial and surface tension	
Range		0.01 to 2000 mN/m	
Resolution		0.01 mN/m	
Accuracy		0.3 mN/m	
Model		Young-Laplace	
Types		static, dynamic	

¹⁾ optional

²⁾ optional for DSA100B

³⁾ optional for DSA100S

⁴⁾ software-based

⁵⁾ instrument-based

⁶⁾ additional accessories may be required

General specifications	DSA100B	DSA100S	DSA100E
Sample dimensions			
Maximum sample space ⁷⁾	320 mm × ∞ × 275 mm (W × D × H)		
Temperature control			
Equipment	temperature-controlled sample stage, chamber, cuvette		
Types	liquid, electrical, Peltier		
Range	-30 ⁸⁾ to 400 °C ⁹⁾		
Maximum sample space	132 mm × 132 mm × 27 mm (W × D × H) ¹⁰⁾		
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) ¹¹⁾	2 connectors (PT100) ¹¹⁾	2 connectors (PT100)
Locations	sample stage, chamber, cuvette		
Housing and peripherals			
Compartment	test liquids protected against light		
Needle protection shield	yes		
Camera and optics housing	yes		
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	555 mm × 375 mm (W × D)		
Height	490 mm		
Weight (without accessories)	24 kg		
Power supply			
Voltage	88 to 264 VAC		
Power consumption	100 W		
Frequency	50 to 60 Hz		
Interfaces			
PC	USB 3.0		

⁷⁾ without axes

⁸⁾ with Tempering Chamber – TC40

⁹⁾ with Tempering Chamber – TC21

¹⁰⁾ with Tempering Chamber – TC11

¹¹⁾ retrofittable