DROP SHAPE ANALYZER – DSA100

SPECIFICATIONS

KRÜSS

Advancing your Surface Science

Product group specifications	DSA100B	DSA100S	DSA100E
Camera system			
Connection	USB 3.0		
Performance	CF04: 160 fps at 1200 × 1200 px 320 fps at 1200 × 600 px 600 fps at 1200 × 300 px 1400 fps at1200 × 100 px 2300 fps at 1200 × 50 px CF06 [1]: up to 3400 fps at 640 × 50 px		
Dark noise	CF04: 7 electrons CF06: 10.5 electrons		
Dynamic range	CF04: 73 dB CF06: 56.6 dB		
Optics			
Focus	manual	manual	manual
Zoom	7× zoom, manual	7× zoom, manual	7× zoom, manual
View angle	±4°		
Field of view	CF04: 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	CF04: 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]	0.1°		
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		
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)	2 connectors (PT100)	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	
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