

# DROP SHAPE ANALYZER – DSA100

## SPECIFICATIONS



Product group specifications	DSA100B			DSA100S			DSA100E		
<b>Camera system</b>									
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 <sup>1)</sup> : 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								
<b>Optics</b>									
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 <sup>1)</sup> : 1.7 mm × 1.3 mm to 10.8 mm × 8.1 mm								
Resolution	CF03: 3.1 to 21.7 μm CF06 <sup>1)</sup> : 2.5 to 17.8 μm								
<b>Illumination</b>									
Type	high power monochromatic LED								
Wave length, dominant	470 nm								
Field of light	46 mm × 46 mm (D × H)								
<b>Dosing system</b>									
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		
<b>Double pressure dosing system <sup>1)</sup></b>									
Drop deposition	software-controlled								
Cartridge, volume	disposable (1 mL)								
Resolution	0.1 μL								
Speed	fixed								
<b>Stages</b>									
	x-axis	y-axis	z-axis	x-axis <sup>2)</sup>	y-axis <sup>2)</sup>	z-axis	x-axis <sup>2), 3)</sup>	y-axis <sup>2), 3)</sup>	z-axis <sup>2), 3)</sup>
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
<b>Tilting</b>			
Types	internal		external <sup>1)</sup>
Control		software-controlled	
Range		0 to 90°	
Resolution	0.01°		0.1°
Accuracy	0.3°		1°
<b>Software</b>			
ADVANCE		contact angle	
		surface free energy of solids <sup>2)</sup>	
		interfacial and surface tension of liquids <sup>2),3)</sup>	

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

<sup>1)</sup> optional

<sup>2)</sup> optional for DSA100B

<sup>3)</sup> optional for DSA100S

<sup>4)</sup> software-based

<sup>5)</sup> instrument-based

<sup>6)</sup> additional accessories may be required

General specifications	DSA100B	DSA100S	DSA100E
<b>Sample dimensions</b>			
Maximum sample space <sup>7)</sup>	320 mm × ∞ × 275 mm (W × D × H)		
<b>Temperature control</b>			
Equipment	temperature-controlled sample stage, chamber, cuvette		
Types	liquid, electrical, Peltier		
Range	-30 <sup>8)</sup> to 400 °C <sup>9)</sup>		
Maximum sample space	132 mm × 132 mm × 27 mm (W × D × H) <sup>10)</sup>		
Resolution	0.1 K		
Flow-through thermostat	with liquid		
Inert gas	yes		
<b>Temperature controlled 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	2 connectors (PT100) <sup>11)</sup>	2 connectors (PT100) <sup>11)</sup>	2 connectors (PT100)
Locations	sample stage, chamber, cuvette		
<b>Housing and peripherals</b>			
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		
<b>Environment</b>			
Operating temperature	10 to 40 °C		
Humidity	without condensation		
<b>Instrument dimensions</b>			
Footprint	555 mm × 375 mm (W × D)		
Height	490 mm		
Weight (without accessories)	24 kg		
<b>Power supply</b>			
Voltage	88 to 264 VAC		
Power consumption	100 W		
Frequency	50 to 60 Hz		
<b>Interfaces</b>			
PC	USB 3.0		

<sup>7)</sup> without axes

<sup>8)</sup> with Tempering Chamber – TC40

<sup>9)</sup> with Tempering Chamber – TC21

<sup>10)</sup> with Tempering Chamber – TC11

<sup>11)</sup> retrofittable