

# DROP SHAPE ANALYZER – DSA25

## SPECIFICATIONS



**KRÜSS**

Advancing your Surface Science

Product group specifications	DSA25B	DSA25S	DSA25E
<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	
Zoom	fixed focal length	6.5× zoom, manual	6.5× zoom, manual
View angle		±3°	
Field of view	CF03: 15.2 mm × 15.2 mm CF06 <sup>1)</sup> : 6.6 mm × 5 mm	CF03: 3.2 mm × 3.2 mm to 18.5 mm × 18.5 mm CF06 <sup>1)</sup> : 1.4 mm × 1 mm to 8.1 mm × 6 mm	CF03: 3.2 mm × 3.2 mm to 18.5 mm × 18.5 mm CF06 <sup>1)</sup> : 1.4 mm × 1 mm to 8.1 mm × 6 mm
Resolution	CF03: 13.3 μm CF06 <sup>1)</sup> : 10.9 μm	CF03: 2.5 to 16.2 μm CF06 <sup>1)</sup> : 2.1 to 13.3 μm	CF03: 2.5 to 16.2 μm CF06 <sup>1)</sup> : 2.1 to 13.3 μm
<b>Illumination</b>			
Type		high power monochromatic LED	
Wave length, dominant		470 nm	
Field of light		Ø 42 mm	
<b>Dosing system</b>			
Dosing	manual	software-controlled	2x software-controlled
Drop deposition		manual	
Syringes, volume	glass (1×, 200 μL), disposable (400 μL) <sup>1)</sup>	glass (1×, 450 μL), disposable (900 μL) <sup>1)</sup>	glass (1×, 450 μL), disposable 900 μL) <sup>1)</sup>
Resolution	-	0.1 μL with glass syringe	0.1 μL with glass syringe
Speed	-	10 to 900 μL/min with glass syringe	10 to 900 μL/min with glass syringe
<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 <sup>2)</sup></b>			
Control		manual	
Length		38 mm	

Product group specifications	DSA25B	DSA25S	DSA25E
<b>Tilting <sup>1)</sup></b>			
Type		external	
Control		software-controlled	
Range		0 to 90°	
Resolution		0.01°	
Accuracy		0.5°	
<b>Software</b>			
ADVANCE		contact angle	
		surface free energy of solids <sup>3)</sup>	
		interfacial and surface tension of liquids <sup>3), 4)</sup>	

Measurement specifications	DSA25B	DSA25S	DSA25E
<b>Sessile drop/captive bubble</b>			
Result		contact angle (CA)	
Range <sup>5)</sup>		0 to 180°	
Resolution <sup>5)</sup>		0.01°	
Accuracy <sup>6)</sup>		0.3°	
Model		conic section, polynom, circle, Young-Laplace, height-width	
Type <sup>7)</sup>		advancing, receding, static, dynamic, tilting	
<b>Surface free energy of solids <sup>3)</sup></b>			
Result		surface free energy (SFE)	
Model		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>3), 4)</sup></b>			
Result		interfacial tension (IFT)/surface tension (SFT)	
Range <sup>5)</sup>		0.01 to 2000 mN/m	
Resolution <sup>5)</sup>		0.01 mN/m	
Accuracy <sup>6)</sup>		0.3 mN/m	
Model		Young-Laplace	
Type		static, dynamic	

<sup>1)</sup> optional

<sup>2)</sup> movable in x- and y-direction

<sup>3)</sup> optional for DSA25B

<sup>4)</sup> optional for DSA25S

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

<sup>6)</sup> instrument-based

<sup>7)</sup> additional accessories may be required

General specifications	DSA25B	DSA25S	DSA25E
<b>Sample dimensions</b>			
Maximum sample space <sup>8)</sup>	320 mm × ∞ × 165 mm (W × D × H)		
<b>Temperature control</b>			
Devices	temperature-controlled sample stage, chambers, cuvette		
Type	liquid, electrical, Peltier		
Range	-30 <sup>9)</sup> to 400 °C <sup>10)</sup>		
Maximum sample size	132 mm × 132 mm × 27 mm (W × D × H) <sup>11)</sup>		
Resolution	0.1 K		
External circulator	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	2 connectors (PT100) <sup>12)</sup>	2 connectors (PT100) <sup>12)</sup>	2 connectors (PT100)
Location	sample stage, chamber, cuvette		
<b>Housing and peripherals</b>			
Control keyboard	PC keyboard for ADVANCE software operation available (KB20)		
Levelling	yes		
<b>Environment</b>			
Temperature	operating: 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</b>			
Voltage	88 to 264 V		
Power consumption	40 W	100 W	100 W
Frequency	50 to 60 Hz		
<b>Interfaces</b>			
PC	USB 3.0		

<sup>8)</sup> without axes

<sup>9)</sup> with Tempering Chamber – TC40

<sup>10)</sup> with Tempering Chamber – TC21

<sup>11)</sup> with Tempering Chamber – TC 11

<sup>12)</sup> retrofittable