

# DROP SHAPE ANALYZER – DSA100M

## SPECIFICATIONS



**Product group specifications**
**DSA100M**
**Camera system**

|               |   |
|---------------|---|
| Connection    | USB 3.0   |
| Performance   | CF03: 150 fps at 1200 × 1200 px<br>500 fps at 1200 × 350 px<br>800 fps at 1200 × 200 px<br>2000 fps at 1200 × 60 px |
|               | CF06 <sup>1)</sup> : up to 3400 fps at 640 × 50 px  |
| Dark noise    | CF03: 7 electrons<br>CF06: 10.5 electrons   |
| Dynamic range | CF03: 73 dB<br>CF06: 56.6 dB  |

**Optics**

|               |   |
|---------------|---|
| Focus         | fixed focus   |
| Zoom          | 6.5× microscope zoom, manual  |
| View angle    | ±4°   |
| Field of view | CF03: 0.2 mm × 0.2 mm to 0.9 mm × 0.9 mm (7× to 45×)<br>CF06 <sup>1)</sup> : 0.1 mm × 0.1 mm to 0.4 mm × 0.3 mm (7× to 45×) |
| Resolution    | CF03: 0.1 to 0.8 μm<br>CF06 <sup>1)</sup> : 0.1 to 0.7 μm   |

**Observation optics**

|               |                       |
|---------------|-----------------------|
| Field of view | CF03: 2.3 mm × 2.3 mm |
| Resolution    | CF03: 2 μm            |

**Illumination**

|                       |                              |
|-----------------------|------------------------------|
| Type                  | high power monochromatic LED |
| Wave length, dominant | 460 nm                       |
| Field of light        | Ø 12 mm                      |

**Dosing system**

|                     |                     |
|---------------------|---------------------|
| Dosing              | software-controlled |
| Syringes, volume    | 4 mL                |
| Resolution          | fixed               |
| Speed of dosed drop | 2 m/s               |

**Stages**

|            | x-axis     | y-axis    | z-axis    |
|------------|------------|-----------|-----------|
| Control    |            | manual    |           |
| Length     | 30 mm      | 50 mm     | 45 mm     |
| Resolution | 20 mm/turn | 4 mm/turn | 1 mm/turn |

**Software**

|         |  |
|---------|--|
| ADVANCE | contact angle<br>surface free energy of solids |
|---------|--|

<sup>1)</sup> optional

**Measurement specifications****DSA100M****Sessile drop/Captive bubble**

|                          |   |
|--------------------------|---|
| Result                   | contact angle   |
| Range <sup>2)</sup>      | 0 to 180°   |
| Resolution <sup>2)</sup> | 0.01°   |
| Accuracy <sup>3)</sup>   | 0.3°  |
| Models                   | conic section, polynom, circle, Young-Laplace, height-width |
| Types <sup>4)</sup>      | static, dynamic   |

**Surface free energy of solids <sup>1)</sup>**

|        |  |
|--------|--|
| Result | surface free energy  |
| Models | equation of states, Zisman, Fowkes, Wu, Owens-Wendt-Rabel-Kaelble, extended Fowkes, acid-base theory |

<sup>2)</sup> software-based

<sup>3)</sup> instrument-based

<sup>4)</sup> additional accessories may be required

**General specifications****DSA100M****Sample dimensions**Maximum sample space <sup>5)</sup> 320 mm × ∞ × 275 mm (W × D × H)**Temperature control**

|                         |                                     |
|-------------------------|-------------------------------------|
| Equipment               | temperature-controlled sample stage |
| Type                    | liquid                              |
| Range                   | -10 to 130 °C <sup>6)</sup>         |
| Tempered area           | 26 mm × 90 mm (W × D)               |
| Resolution              | 0.1 K                               |
| Flow-through thermostat | with liquid                         |

**Temperature controlled 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) <sup>7)</sup>               |
| Locations       | sample stage, chamber, cuvette                   |

**Housing and peripherals**

|                          |   |
|--------------------------|---|
| Compartment              | test liquids protected against light                        |
| Needle protection shield | 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 |
|----|---------|

<sup>5)</sup> without axes<sup>6)</sup> with Tempering Chamber – TC3240<sup>7)</sup> retrofittable