OCA 15EC

Video-based optical contact angle measuring instrument

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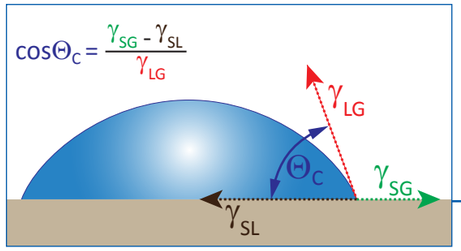


Sessile drop schematic showing the quantities of Young's equation

OCA 15EC Package 2 incl. DD-DM, two ESr-D, SCA 20, and SCA 21

Liquid temperature control unit TFC 100Pro

Features of the OCA 15EC
Whether your application demands the evaluation of contact angle or drop shape, the video-based optical contact angle measuring system, OCA 15EC, is the instrument of choice where initial budgets are limited.
The **OCA 15EC Package 1** consist of a single direct dosing system SD-DM, one electronic dosing unit ESr-D, and the software modules SCA 20 and SCA 21.
The **OCA 15EC Package 2** consist of a double direct dosing system DD-DM, two electronic dosing units ESr-D, and the software modules SCA 20 and SCA 21.
The OCA 15EC can be easily broken down for transportation in the optional case TBO.

OCA 15EC Package 1 incl. SD-DM, ESr-D, SCA 20, and SCA 21

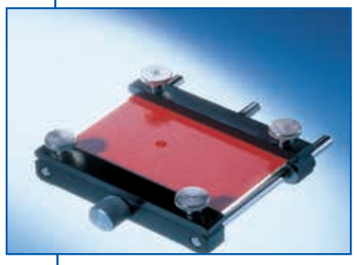
Components and accessories
- Sample table manual movable (magnetic slide system) in horizontal and precise adjustable in vertical (z-axis) direction via hand wheel
- High performance 6x parfocal zoom lens with integrated continuous fine focus and adjustable observation and camera tilt angle
- Video measuring system with USB camera (159 images/s), easily upgradable with the high-speed option UpUSB ⅓H (max. 311 images/s) or the high-speed video system UpHSV 1220n (max. 1220 images/s)
- LED-lighting with manual and software controllable intensity without hysteresis
- Single or double direct dosing system SD-DM / DD-DM for use with standard and disposable syringes and needles
- Up to two electronic syringe units ESr-D, software controlled dosing rate of 0.4 nl/s...174 µl/s
- Temperature and environmental control systems TFC 100Pro (-10...100 °C) and TPC 150 (-30...160 °C)
- Wide range of sample holders, incl. units for foils or papers FSH 30 and FSC 80/150, or the suction plate SP 100 for holding thin flexible samples flat on the stage with an adjustable suction area
- Electro wetting platform EWP 100 for the analysis of sessile and pendant drops under a definable electrical field

Software for efficient work
DataPhysics is specialised in the development of high-precise and reliable methods for evaluating drop contours in combination with statistical error analysis. The SCA software assists you in the intuitive use of the video-based optical contact angle measuring instrument OCA 15EC by specifying measurement procedures and in collecting, assessing, and evaluating the measured data.
The SCA software is designed as a modular program for all OCA instruments running under Microsoft Windows.
The available software modules for the OCA 15EC are:
SCA 20 — contact angle
- Video based measurement and presentation of the static and dynamic contact angle on plane, convex, and concave surfaces
- Automatic measurement of the contact angle hysteresis
- Record/store of image sequences
- Statistics and measurement error analysis
- Liquids and solids database with currently more than 170 records for all surface energy analysis methods including related citations

SCA 21 — surface free energy
- Analysis of the surface free energy of solids as well as their components (e.g. dispersive, polar and hydrogen bond parts, acid and base portions) according to nine different theories
- Representation of wetting envelopes and work of adhesion/contact angle diagrams

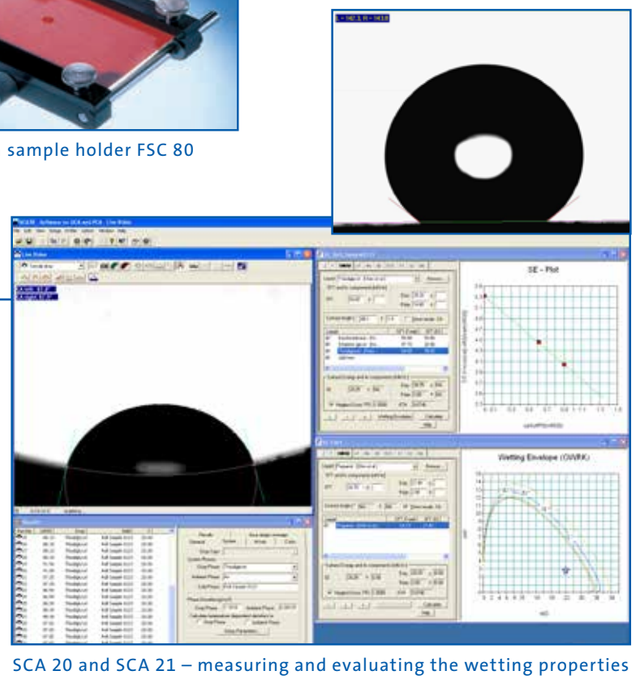
SCA 22 — surface and interfacial tension
- Analysis of the surface and interfacial tension, as well as their polar and dispersive contributions, based on the analysis of the drop shape of pendant drops

SCA 23 — lamella and liquid bridge analysis
- Analysis of the surface and interfacial tension based on the evaluation of the lamella contour
- Innovative liquid bridge analysis of 3 phase systems.



Film sample holder FSC 80

Water drop on an ultrahydrophobic substrate



SCA 20 and SCA 21 – measuring and evaluating the wetting properties of solids

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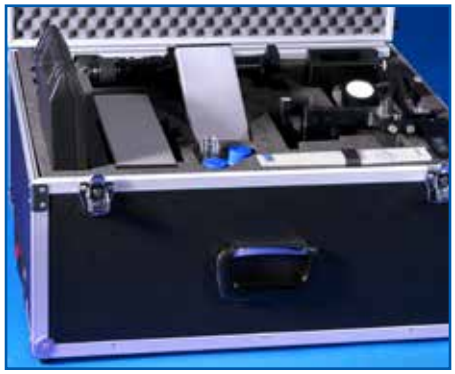
Technical data

Max. sample dimensions (L x W x H):	• 220 x ∞ x 70 mm
Sample table dimensions:	• 100 x 100 mm
Traversing range of sample table in x-y-z direction:	• 110 x 150 x 42 mm
Max. sample weight:	• 3.0 kg; 15.0 kg clamped
Measuring range for contact angles:	• 0...180°; ± 0.1° measuring precision of the video system
Measuring range for surface and interfacial tensions:	• $1{\cdot}10^{-2}$...$2{\cdot}10^{3}$ mN/m resolution: ± 0.01 mN/m
Optics:	• 6-fold zoom lens (0.7 ... 4.5 magnification) with integrated fine focus (± 6 mm) • LED lighting with manual and software controlled adjustable intensity without hysteresis
Video system:	• USB camera, max. resolution 752 x 480 pixel, max. sample rate 159 images/s, field of view 1.05 x 0.66... 6.72 x 4.25 mm • Image distortion < 0.05%
Measuring techniques:	• Sessile and captive drop method, tilting table method • Pendant drop method • Lamella method • Liquid bridge analysis
Dimensions (L x W x H):	• 550 x 160 x 365 mm
Weight:	• 14 kg
Power supply:	• 100...240VAC; 50...60Hz; 70 W



Transport case TBO for OCA 15EC

Accessories

The OCA 15EC shares a common feature with all the other contact angle measuring instruments of the OCA series – the *OCA accessory range*.
• high-speed option for USB-camera (max. 311 images/s) **UpUSB ⅓H** • liquid temperature control unit **TFC 100Pro** • syringe heating device **SHD** • peltier temperature control unit **TPC 150** • minute droplet kit **MDK 15** • film or paper sample holder **FSC 80** • film sample holder **FSH 30** • holder for single fibres and hairs **FHO 40 plus** • suction plate **SP 100** • optical contact angle and drop shape standards **OCAS** • dispersive solid reference surface **SFE-DS** • electrowetting platform **EWP 100** • dosing syringes **DS xx** • dosing needles for sessile drop measurements SNS xx • dosing needles for pendant drop measurements **SNP xx** • hydrophobization kit for dosing needles **HY-Kit** • dosing needles for captive bubble measurements **SNC xx** • glass cuvettes for captive bubble measurements **GC xx** • Transport case **TBO** • PC systems or notebooks.

For more information about a tailor made solution to your surface chemistry requirements, please contact us.
We will be pleased to provide a quotation, obligation free, for your instrument system.

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