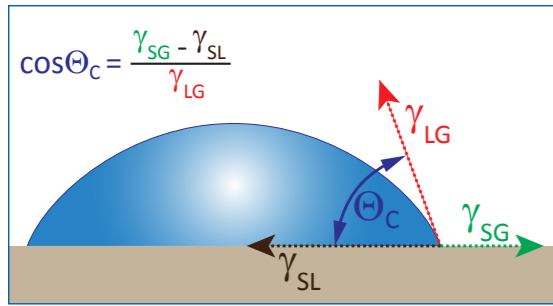


OCA 15EC

Video-based optical contact
angle measuring instrument





Sessile drop schematic showing the quantities of Young's equation

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 2 incl. DD-DM, two ESr-D, SCA 20, and SCA 21



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 1/3H (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 cur-

rently 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 disper-



Liquid temperature control unit TFC 100Pro

sive contributions, based on the analysis of the drop shape of pendant drops

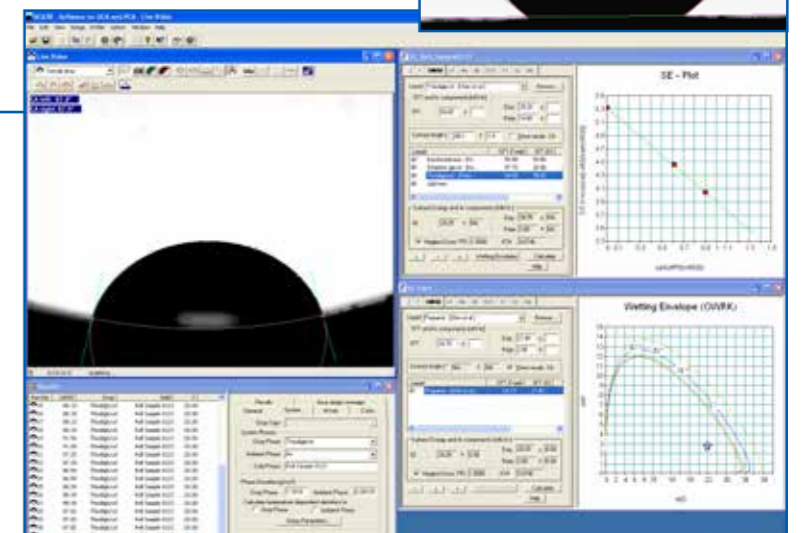
SCA 23 — lamella and liquid bridge analysis

- 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

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:	• 1·10 ⁻² ...2·10 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 1/3H** • 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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