

DIGITAL REFRACTOMETERS – TYPE: DESKTOP



KERN Pictograms

 360° rotatable microscope head With 360° rotation for the inspection with both eyes.	 Fluorescence illumination for compound microscopes With 100W mercury lamp and filter.	 Integrated scale In the eyepiece	 Battery operation Ready for battery operation. The battery type is specified for each device.
 Monocular Microscope For the inspection with one eye	 Fluorescence illumination for compound microscopes With 3 W LED illumination and filter	 SD card For data storage	 Battery operation rechargeable Prepared for a rechargeable battery operation
 Binocular Microscope For the inspection with both eyes	 Fluorescence illumination for compound microscopes With 3 W LED illumination and filter	 USB 2.0 interface For data transmission	 Plug-in power supply 230V / 50Hz in standard version for EU. On request GB, AUS or USA version.
 Trinocular Microscope For the inspection with both eyes and the additional option for the connection of a camera	 Phase contrast unit For a higher contrast	 USB 3.0 interface For data transmission	 WIFI data interface: For transmitting of the picture to a mobile display device
 Abbe Condenser With high numerical aperture for the concentration and the focusing of light	 Darkfield condenser/ unit For a higher contrast due to indirect illumination	 HDMI digital camera For direct transmitting of the picture to a display device	 Integrated power supply unit Integrated in microscope. 230V / 50Hz standard EU. More standards e.g. GB, AUS or USA on request.
 Halogen illumination For pictures bright and rich in contrast	 Polarising unit To polarise the light	 PC software To transfer the measurements from the device to a PC.	 Package shipment The time required to manufacture the product internally is shown in days in the pictogram.
 LED illumination Cold, energy-saving and especially long-life illumination	 Infinity system Infinity corrected optical system	 Zoom magnification For stereomicroscopes	 Automatic temperature compensation For measurements between 10 °C and 30 °C
 Incident illumination For non-transparent objects	 Auto-focus For automatic control of the focus level	 Protection against dust and water splashes IPxx: The type of protection is shown in the pictogram cf. DIN EN 60529:2000-09, IEC 60529:1989+A1:1999 +A2:2013	 Pallet shipment The time required to manufacture the product internally is shown in days in the pictogram.
 Transmitting illumination For transparent objects	 Parallel optical system For stereomicroscopes, enables fatigue-proof working		
 Fluorescence illumination For stereomicroscopes			

Abbreviations

C-Mount	Adapter for the connection of a camera to a trinocular microscope	SLR camera	Single-Lens Reflex camera
FPS	Frames per second	SWF	Super Wide Field (Field number at least $\phi 23$ mm for 10× eyepiece)
H(S)WF	High (Super) Wide Field (Eyepiece with high eye point for wearers of glasses)	W.D.	Working Distance
LWD	Long Working Distance	WF	Wide Field (Field number up to $\phi 22$ mm for 10× eyepiece)
N.A.	Numerical Aperture		

KERN Models A – Z

OAB-L	110-111
OBE-12 · OBE-13	16
OBE-S	67
OBL-12 · OBL-13	16
OBL-14 · OBL-15	18
OBL-S · OBN-S	68
OBN-13 · OBN-15	20
OBN-14	22
OBS-1	10
OBT-1	12
OCM-1	24
ODC-2	89
ODC-82 · ODC-83 · ODC-84	86
ODC-85 · ODC-86	87
ODC-87 · ODC-88 · ODC-89	88
OIV-2	64
OIV-3	63
OIV-6	65
OKM-1	27
OKO-1	29
OLM-1	31
OPO-1	34
ORA	94-100
ORL-B	107
ORM	101-106
OSE-4 · OZL-9 · OZM-9	73
OSE-42	38
OSF-4G	40
OXM-9	90
OZB-H	82
OZB-IR	84
OZB-M	75-79
OZB-UE	81
OZB-UP	80
OZG-4	58
OZL-44	42
OZL-45	48
OZL-45R	50
OZL-46	44
OZL-47	46
OZL-S	69
OZM-5	52
OZM-9	72
OZM-S · OZP-S	70
OZP-5	54
OZS-5	56
OXM-9 (Software OXM 901 · OXM 902)	90

KERN Customer Consultants

With questions about our products and services, we will be happy to advise you:

UK, IE, IS, FR, Maghreb, BE, LUX



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KERN Hotlines

Technical questions about our products?

You will find assistance here quickly: **+49 7433 9933- ...**



→ 199

Service Hotline

for general technical questions about your KERN product

Optical Devices

for all technical questions concerning our microscopes, microscope cameras, refractometers, etc.

→ 777

Laboratory and Analytical Balances

for all technical questions concerning our high quality precision balances, analytical balances (especially with electromagnetic force-compensated measuring systems, tuning fork and high application density)

→ 444

SAUTER Measuring Instruments

for all technical questions concerning our SAUTER measuring instruments, test benches, force measuring accessories (clamps etc.), SAUTER software

→ 555

System Solutions Industry 4.0

for all technical questions concerning the interlocking of the latest information and communication technology with our scales, load cells and measuring devices as well as questions about KERN software

→ 200

Calibration and Verification Service

for any questions concerning our calibration and verification service

→ 196



Transport and storage case



Rear view, screw-on battery compartment cover

Digital refractive index measurement for laboratories and the industry for multi-application ▶ Laboratory refractometer

Features

- The models in the KERN ORL range are accurate, universal and maintenance-free digital desktop refractometers
- Other key features are the extra-large measuring range and a high degree of accuracy
- With their handy design, they are ideal for convenient and rapid everyday use
- The large, easy-to-read multi-function display with integrated temperature display supports the user to reliably determine the measurement
- The integrated automatic temperature compensation (ATC), avoids the manual conversion of the measurement. This allows a quick and efficient usage of the instrument

- Rapid, user-friendly calibration of the refractometer is possible at any time using standard commercial distilled water
- Mean value measurement (15 measurements)
- The following accessory-parts are included:
 - Pipette
 - Storage box
 - USB cable
 - Power adapter
 - Screwdriver

Technical data

- Measurement temperature: 0 °C – 40 °C
- Overall dimensions W×D×H 180×100×55 mm
- Net weight approx. 365 g (without battery)
- Power supply: USB connection, as an alternative 1 × battery 3.7 V 3000 mA (not included with delivery)
- ATC (Automatic Temperature Compensation)
- Minimum sample volume: 0,3–0,4 ml
- Automatic energy management (AUTO-OFF after 3 Minutes)
- Mean value measurement (15 measurements)

Accessories

- Rechargeable Battery 3,7 V 3000 mA, KERN ORL-A2007, € 65,-
- ORA-A1010 Calibration liquid



Model	Scales	Measuring range	Accuracy	Division	Price excl. of VAT ex works €
KERN					
ORL 94BS	Brix Refractive index	0 – 94 % 1,3330 – 1,5290 nD	± 0,1 % ± 0,0002 nD	0,1 % 0,0001 nD	920,-



Also available with calibration certificate, see page 108!



KERN & SOHN GmbH
Kern Calibrationslabor seit 1994 / Calibration laboratory since 1994.
 Ihr Partner für Kalibrierdienstleistungen, Prüfungsmanagement und Beratung.
 Your partner for calibration services, test equipment management and support.

R8-101-KERN-2023-09

Kalibrierschein Calibration certificate	
Kalibiergegenstand / Prüfling: Calibration object	Digitaler Handrefraktometer Digital hand refractometer
Hersteller/ Manufacturer:	Stahl / Messbereich: Brix / 0 % bis 50 % Teilung / Genauigkeit: 0.1 % ± 0.2 % Dosis / Dose:
Type:	KERN & Sohn GmbH Ziegelreihe 72336 Balingen Deutschland
Fabrikat/Serien-Nr./ Series number:	ORM 21W
Auftraggeber/ Customer:	ORM2M0194
Auftragsnummer/ Order No:	2023-23065915
Datum der Kalibrierung/ Date of calibration:	01.09.2023
Ort der Kalibrierung: Place of calibration:	Kern Calibrationslaboratory KERN Optics
Kalibrierverfahren/ Calibration method:	Calibration according to NIST
Referenzlösung 1: Reference solution 1:	Raum in unmittelbarer Nähe zueinander platziert. Nach einer Zeit von 24 Stunden werden die Messungen an den Referenzlösungen mit dem Prüfling durchgeführt.
Chargennummer 1: Lot number 1:	BS50S (Reagecon)
Messergebnisse/ Measurement results:	Referenzlösung 2: Reference solution 2:
Sollwert Referenz- Lösungen: Target value reference solution:	Aspekte Prüfung: Aspect of testing:
Stellung 1 Position 1: Sollwert: Target value:	Lösung 1 Solution 1: 0.0 % Brix
Stellung 2 Position 2: Sollwert: Target value:	Lösung 2 Solution 2: 30.1 % Brix
	Toleranz: Tolerance:
	Bestanden: Passed:

Dieser Kalibrierschein dokumentiert die bestimmungsgemäße Messfunktionalität des Kalibiergegenstands, die sich in Einheiten des Internationalen Einheitensystems von NIST ausdrückt und über Zuhilfenahme von Messhilfsmitteln ermittelt wurde, die sich auf entsprechende Referenzlösungen zurückführen. Für die Einhaltung einer angemessenen Frist zur Wiederholung der Kalibrierung ist der Benutzer verantwortlich.

This calibration certificate documents the intended function of measurement of the calibrated object which is expressed in units of the International System of Units from NIST. The measurement was carried out by means of measurement tools which are traceable to corresponding reference solutions. The user is obliged to have the object recalibrated at regular intervals.

Die englische Übersetzung des Kalibrierscheins ist eine unverbindliche Übersetzung. Zweifelsfall gilt der deutsche Originaltext.

The English version of the calibration certificate is not binding. In case of doubt, the German original text must be used.

Dieser Kalibrierschein darf nur vollständig und unverändert weiterverbreitet werden. Auszüge oder Änderungen bedürfen der Genehmigung des ausstellenden Kalibrierbüros. Kalibrierscheine ohne Unterschrift haben keine Gültigkeit.

This calibration certificate may not be reproduced other than as full except with the permission of the issuing laboratory. Calibration certificates without signature are not valid.

Calibrator:
KERN
Laboratory

Datum:
01.09.2023

Leiter Kern Optics
Head of Kern Optics

Bearbeiter/
Person responsible:

Daniel Jünger

Patricia Schönen

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DX003 (rev 2.0)

Your partner for calibration services, management of test equipment and support

Features

- Any analogue or digital refractometer will only give correct results if it is checked regularly, i.e. calibrated correctly and adjusted when required. A refractometer or another measuring device is only a reliable measuring and checking tool if it is calibrated and this calibration is documented as part of a quality procedure
- Measuring "correctly" is of elementary significance, as it is not unusual for inaccurate or "wrong" measurements to have expensive economic consequences. Calibration or establishing the accuracy of checking equipment must therefore be carried out by laboratories throughout the world

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- In the context of standard requirements for monitoring checking equipment, every company with a Quality Management system is obliged to test and document its measuring equipment at regular intervals
- The refractometer calibration certificate documents the intended measuring functionality and confirms the measuring accuracy of your refractometer to you

Important

- Refractive index standard traceable to SRM¹ of NIST² and PTB³
- This service is not possible for the following refractometer models:
 - ORA 6HA / 6HB
 - ORA 1RE
 - ORA 4RR
 - ORA 1GG / 2GG
- Calibration of products from other manufacturers is possible on request

¹Standard reference material

²National Institute of Standards and Technology

³Physikalisch-Technische Bundesanstalt
(German metrology institute)

Model	Description	Price excl. of VAT ex works €
KERN		
961-290	Calibration certificate for refractometers on initial calibration	129,-
961-290R	Calibration certificate for refractometers on recalibration	129,-

KERN & SOHN GmbH

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The oldest Precision Balance
Factory in Germany



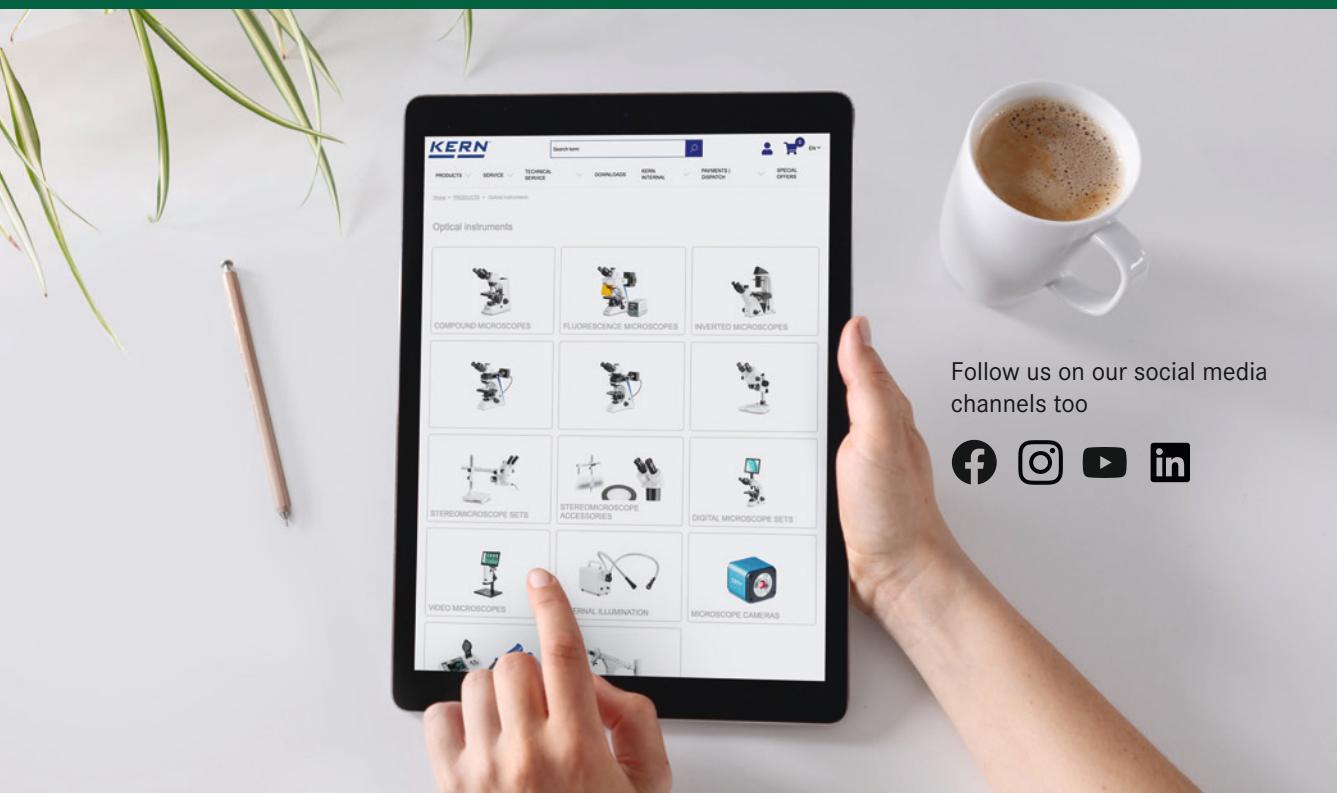
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- Technical Product Data Sheets
- Operating Instructions
- Descriptive Image and Video Material

- Useful KERN Services
- Technical Glossary
- KERN Dealer Portal
- Practical Filter and Search Functions



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