Digital refractometer KERN ORD





Transport and storage case



Battery compartment

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

Features

- The KERN ORD refractometers are accurate and universal maintenance free digital handheld refractometers.
- The typical and practical design is suitable for a quick and convenient everyday use and is characterized by its easy-using and robustness.
- The large display is easy to read. Mistakes in reading are avoided.
- A large selection of models is available with single or multiple scales. This allows the use in various applications.
- The instrument comes with an optimized software that can show a result in different scales.
- The integrated automatic temperature compensation (ATC), avoids the manual conversion of the measurement. This allows a quick and efficient usage of the instrument.
- The required calibration liquid is already included in scope of in the delivery, as well as a storage box, a leather case, a pipette, a small screwdriver and a cleaning cloth.

Technical data

- Measurement temperature: 10°C – 30°C
- Packing dimensions WxDxH 235x200x65 mm
- Overall dimensions WxDxH 133x65x38 mm
- Net weight approx. 200 g
- Power supply: 2 x AAA (1,5V)
- Lifetime of the battery: 10000 measurements
- ATC (Automatic Temperature Compensation)
- Minimum sample volume: 2 drops
- Automatic energy management (turns off after 5 minutes)

NEW Technical data

- Measurement temperature: 10 °C – 30 °C
- **Protection class: IP67**
- **Large color TFT display: 43x57 mm**
- Packing dimensions WxDxH 235x200x65 mm
- Overall dimensions WxDxH 145x68x40 mm
- Net weight approx. 210 g
- Power supply: 2 x AAA (1,5V)
- Lifetime of the battery: approx. 10000 measurements
- ATC (Automatic Temperature Compensation)
- Minimum sample volume: 2 drops
- Automatic energy management (turns off after 5 minutes)

Available from May 2015 in our KERN Webshop

STANDARD

BATT | 1 DAY | 2 YEARS WARRANTY

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Scope of application: Sugar



The following models are particularly suitable for the measurement of the “BRIX” value. They are used to determine the sugar content in food, especially in fruit, vegetables, juice and sweet or soft drinks. In the same ideal way, these refractometers serve in monitoring processes in the industry (coolant monitoring, oils, lubricants and fats). Alternativly, the dispaly can be switched to show the refractive index.

The main scope of applications is:
- Industry: Monitoring of lubricants in machines and quality control
- Food industry: Beverages, fruits and sweets
- Agriculture: Determination of the degree of ripeness of fruit for quality control in harvesting
- Restaurants and large-scale catering establishment

Model **KERN**	Scales	Measuring range	Accuracy	Division	
ORD 45BM	Brix Refractive index	0 – 45 % 1,3330 – 1,4098 nD	± 0,2 % ± 0,0003 nD	0,1 % 0,0001 nD	
ORD 92BM	Brix Refractive index	58 – 92 % 1,4370 – 1,5233 nD	± 0,2 % ± 0,0003 nD	0,1 % 0,0001 nD	
ORD 85BM	Brix Refractive index	0 – 85 % 1,3330 – 1,5100 nD	± 0,2 % ± 0,0003 nD	0,1 % 0,0001 nD	

Scope of application: Honey



The following models are particularly suitable for the measurement of the “BRIX” value, the water content in honey according to the International Honey Commission (IHC2002) and “degrees Baumé” to determine the relative density of liquids. Alternatively the display can be switched to show the refractive index.

The main scope of applications is:
- Beekeeping
- Honey production

Model **KERN**	Scales	Measuring range	Accuracy	Division	
ORD 92HM	Brix Baumé Water content Refractive index	58 – 92 % 38 – 43 °Bé 13 – 25 % 1,4370 – 1,5233 nD	± 0,2 % ± 0,1 °Bé ± 0,1 % ± 0,0003 nD	0,1 % 0,1 °Bé 0,1 % 0,0001 nD	

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Scope of application: Salt



The following models are particularly suitable to determin the concentration of NaCl (salt) in water. This is often used for the preparation and for the cooking of sauces, bases for pastries, the production of brines (e.g. for white cheese) and the preparation of seafood and marinades for meat. Alternatively the display can be switched to show the refractive index.

The main scope of applications is:
- Food industry
- Restaurants, and large-scale catering establishment, canteens

Model KERN	Scales	Measuring range	Accuracy	Division	
ORD 1SM	Salt (NaCl) Refractive index	0 – 28 % 1,3330 – 1,3900 nD	± 0,2 % ± 0,0003 nD	0,1 % 0,0001 nD	
ORD 3SM	Brix Salt (NaCl) Refractive index	0 – 35 % 0 – 28 % 1,3330 – 1,3900 nD	± 0,2 % ± 0,2 % ± 0,0003 nD	0,1 % 0,1 % 0,0001 nD	

Scope of application: Wine



The following models are particularly suitable for the measurement of the sugar content in fruit. It indicates the expected °Alcohol of the fruit. The degree of ripeness of fruit (fruit-sugar) can also be determined, such as e.g. grapes.

The main scope of applications is:
- Agriculture: Wine-growing (viticulture) and fruit-growing
- Wine-production
- Must and alcohol production

°Oe = Degree Oechsle, °KMW = Klosterneuburger Most Waage

Model KERN	Scales	Measuring range	Accuracy	Division	
ORD 2WM	Mass SW Vol. AP Oechsle KMW (Babo)	0 – 35 % 0 – 22 % 30 – 150 °Oe 0 – 25 °KMW	± 0,2 % ± 0,1 % ± 1 °Oe ± 0,1 °KMW	0,1 % 0,1 % 1 °Oe 0,1 °KMW	

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Scope of application: Urine



The following models are particularly suitable for the measurement of the specific gravity (sg) in urine, the quantitiy of serum (serumproteine) in urine (doping control among athletes), and the refractive index.

The main scope of applications is:
- Hospitals
- Doctor's surgeries / Physicians
- Medical training institutions
- Nursing homes
- Sports medicine (doping test)

Model KERN	Scales	Measuring range	Accuracy	Division	
ORD 1PM	Serum protein Urine (spec. gravity) Refractive index	0 – 12 g / dl 1,000 – 1,050 sgU 1,3330 – 1,3990 nD	± 0,1 g / dl ± 0,001 sgU ± 0,0003 nD	0,1 g / dl 0,001 sgU 0,001 nD	

Scope of application: Industry / Automotive



The following models are particularly suitable for the measurement and determination of AdBlue, glycol concentration (ethylene EG, propylene PG), battery fluid (BF), urea, the freezing point of fountain solution (CW) and the refractive index. Furthermore these models are suitable for the measurement of thermal exchange systems.

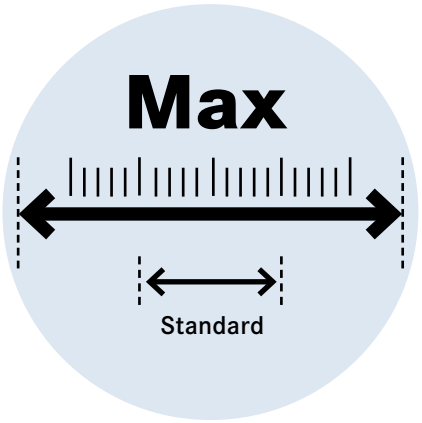
The main scope of applications is:
- Automotive industry: Car-workshops and producers
- Chemical industry
- Solar industry: Antifreeze monitoring
- Geothermal industry: Brine-concentration-measurement for ground heat
- Forestry / Lumbermen

Model KERN	Scales	Measuring range	Accuracy	Division	
ORD 2UM	EG PG BF CW	-50 – 0 °C -50 – 0 °C 1.00 – 1.50 kg / l -40 – 0 °C	± 0,5 °C ± 0,5 °C ± 0,01 kg / l ± 0,5 °C	0,1 °C 0,1 °C 0,01 kg / l 0,1 °C	
ORD 5UM	EG PG Urea CW	-50 – 0 °C -50 – 0 °C 0 – 40 % -40 – 0 °C	± 0,5 °C ± 0,5 °C ± 0,2 % ± 0,5 °C	0,1 °C 0,1 °C 0,1 % 0,1 °C	
ORD 6US	Urea	0 – 40 %	± 0,2 %	0,1 %	

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Scope of application: Expert applications

The following model has a special large measuring range for the refractive index.



The main scope of applications is:
- Universal measuring instrument, especially for applications with extra large measuring ranges

Model KERN	Scales	Measuring range	Accuracy	Division	
ORD 1RS	Refractive index	1,3330 – 1,5400 nD	± 0,0003 nD	0,0001 nD	

Accessory parts: Digital refractometer – ORD

Model KERN	Description	
ORA-A1006	Calibration liquid 60,0 % Content: 2,5 ml	
ORA-A2103	Leather bag for digital refractometer	



Calibration liquid



Calibration block

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KERN Pictograms:



360° rotatable microscope head



Monocular Microscope
For the inspection with one eye



Binocular Microscope
For the inspection with both eyes



Trinocular Microscope
For the inspection with both eyes and the additional option for the connection of a camera



Abbe Condenser
With high numerical aperture for the concentration and the focusing of light



Halogen illumination
For pictures bright and rich in contrast



LED illumination
Cold, energy saving and especially long-life illumination



Incident illumination
For non-transparent objects



Transmitting illumination
For transparent objects



Fluorescence illumination
For stereomicroscopes



Fluorescence illumination for compound microscopes
With 100 W mercury lamp and filter



Fluorescence illumination for compound microscopes
With 3 W LED illumination and filter



Phase contrast unit
For a higher contrast



Polarising unit
To polarise the light



Infinity system
Infinity corrected optical system



Zoom magnification
For stereomicroscopes



Parallel optical system
For stereomicroscopes, enables fatigue-proof working



Integrated scale
In the eyepiece



Integrated USB 2.0 digital camera
For direct transmitting of the picture to a PC



Integrated USB 3.0 digital camera
For direct transmitting of the picture to a PC



Automatic temperature compesation
For measurements between 10 °C and 30 °C



Protection against dust and water splashes IPxx
The type of protection is shown by the pictogram.



Battery operation
Ready for battery operation. The battery type is specified for each device.



Rechargeable battery pack
Rechargeable set.



Mains adapter
230V/50Hz in standard version for EU. On request GB, AUS or USA version.



Power supply
Integrated in balance. 230V/50Hz standard EU. More standards e.g. GB, AUS or USA on request.



Package shipment
The time required to manufacture the product internally is shown in days in the pictogram.



Warranty
The warranty period is shown in the pictogram.

Abbreviations

C-Mount Adapter for the connection of a camera to a trinocular microscope

H(S)WF High (Super) Wide Field (Eyepiece with high eye point for wearers of glasses)

LWD Long Working Distance

N.A. Numerical Aperture

SLR Kamera Single-Lens Reflex camera

SWF Super Wide Field (Field number at least Ø 23 mm for 10x eyepiece)

W.D. Working Distance

WF Wide Field (Field number up to Ø 22 mm for 10x eyepiece)

Your KERN specialist dealer: