Survey of models			
Model / Article-No.	DR101-60	DR201-95	DR201-95-OE
Measurement range	1.3330–1.4419 nD 0–60 %Brix	1.3330–1.5318 nD 0–95 %Brix	0–250 °Oechsle 0–95 %Brix
Accuracy	0.0005 nD 0.25 %Brix	0.0003 nD 0.2 %Brix	1 °Oechsle 0.2 %Brix
Resolution	0.0001nD 0.1 %Brix	0.0001nD 0.1 %Brix	1 °Oechsle 0.1 %Brix
Temperature-measurement	0–40 °C	0–40 °C	0–40 °C
Temperature-accuracy	0.5 °C	0.5 °C	0.5 °C
Temperature-compensation	10–40 °C	10–40 °C	10–40 °C
Prism	optical glass		
Case	plastic		
Dimensions	110 x 62 x 32 mm	130 x 80 x 40 mm	
Weight	160 g	200 g	
Power supply	1.5 V batterie	1.5 V batterie	

Precautions:

- Please use the instrument only within the operating temperature of 18–35 °C (65–95 °F).
- This refractometer is an electronic instrument, it can become damaged if dropped or handled in a rough manner.
- The prism is made of optical glass and is susceptible to scratches. Do not apply any rough or abrasive material and take care when cleaning the prism.
- After each use, clean the prism and the prism assembly with a soft cloth or tissue soaked in water, and wipe off with a dy cloth or tissue.
- Do not hold the refractometer under a stream of water from a faucet. Do not splash it with or dip it in water.
- If the surface of the prism becomes coated with an oily solution or similar, it will repel test sample and affect readings. If this occurs, the prism should be cleaned with a weakened detergent or similar solvent.
- Do not use the instrument unless you know how to calibrate.

A. KRÜSS Optronic GmbH
Alsterdorfer Str. 276–278 · 22297 Hamburg / Germany
Fon +49-(0)40-514317-0 · Fax +49-(0)40-514317-60
Email: info@kruess.com · **www.kruess.com**

Version 1.0 | State: Nov 2011 | Subject to technical modification without notice / errors and omissions excepted

KRÜSS
A.KRÜSS OPTRONIC
GERMANY

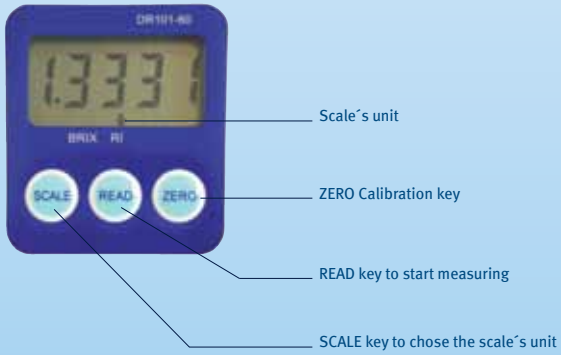
en

Digital Handheld Refractometers
DR101-60 | DR201-95
Operating Manual

www.kruess.com

DR101-60

As an entry-level model in digital refractometry, the DR101-60 covers many areas of application where the wide measurement range of the DR201-95 is not required. It offers excellent value for money, in terms of both procurement and operation. Calibration is also with distilled water.
The waterproof case allows the DR101-60 to be rinsed under running water. This digital handheld refractometer also has an automatic temperature compensation feature, of course.



	Function	Remarks
READ	Power: The instrument is switched on by pressing the READ key. At the same time, the temperature displays on the LCD.	The refractometer will be shut off after 30 seconds of non-use. When alarm of battery displays on the LCD, replace with a new battery.
	Measurements: Apply a few drops of sample on the prism with a pipette. Press the READ key. Within 1 second, the value is shown on the LCD display.	For the best results, gently clean and wipe the prism with distilled water and tissue paper.
ZERO	Zero-Check: Pressing ZERO key quickly to perform zero-check function.	Displays the nD value of the solution.
	Calibration: Pressing ZERO key to perform a zero calibration. To eliminate accidental calibrations, the key must be pressed for 3 seconds.	
SCALE	Active SCALE: The scales can be switched between Brix and Refractive Index resp. Refractive Index and Oechsle degree by pressing the SCALE key until the desired scale is shown by the scale indicator at the bottom section of the LCD display.	DR101-60: Scale's units for Brix and RI
		DR201-95: Scale's units for Brix and RI
		DR201-95OE: Scale's units for RI and Oechsle

Calibration:

Calibration should be performed on a daily basis for optimum results and accuracy. For the best results, perform calibration in a controlled environment of 20°C (68°F) using distilled water of the same temperature. It is recommended to allow the instrument and the distilled water to reach temperature equilibrium with the controlled environment before calibration takes place. Apply a few drops of sample on the prism with a pipette. Press the ZERO key for 3 seconds. When calibration is complete, "CAL" will be shown on the LCD display. To check the RI value of the zero setting for the distilled water, press quickly the ZERO key, once. This data can be viewed at any time to show the last calibration value.
When calibration is complete, gently wipe the prism using tissue paper.

Automatic Temperature Compensation (ATC):

Automatic temperature compensation insure that concentration reading of aqueous (water-based) solutions will be accurate with respect to the sample's temperature. This digital refractometer is able to correct automatically for differences in the temperature of the sample to a reference temperature, usually 20 °C. It is well known that substantially all materials expend when heated (become less dense) and contract when cooled (become more dense).
The speed of light in a liquid increases with temperature, and the refractive index therefore decreases. Although this thermal effect is small for solids, the change in density for liquids is substantial. For example, the reading for a sucrose solution will change by approximately 0.5 Brix for each 10 °C (5 °F) change in temperature. So a 10 Brix solution read at 42 °C (108 °F) would read 8 Brix on a non-temperature compensated instrument.

DR201-95 and DR201-95OE

The DR201-95 is a compact digital handheld refractometer which eliminates any user-related reading errors of manual handheld refractometers. Specially developed for fast and easy quality control and process control, it has a wide measuring range for a refractive index scale and a sugar scale. One DR201-95 can thus often replace several existing instruments. For wine-growing, a special model is available with an Oechsle scale instead of a sugar scale. Both instruments are low-maintenance and are calibrated simply with distilled water. The 1.5 V battery lasts for over 1000 measurements.