

DIGITAL REFRACTOMETERS – DR6000 MODELS

MEASURING SUGARY SAMPLES

The DR6000 models are especially suited for highly accurate measurements of products from the sugar industry. All their features are identical with our DR6000-T models but do not feature an internal Peltier temperature control. Instead of temperature control, the temperature compensation according to ICUMSA can be used. With the help of this already implemented conversion function, the concentration level [% Brix] at the measuring temperature is converted (compensated) to the value at a standard temperature of 20°C.

If needed, our DR6000 models can also be temperature-controlled using an external thermostat. The built-in thermostat connections allow you connect, for example, our PT31 or PT80 in next to no time; both are circulating thermostats with built-in Peltier technology. A temperature sensor integrated into the refractometer displays the current sample temperature which can be regulated via the connected thermostat. In this way it is possible to measure nearly all liquids and pastes also with the DR6000 models when the temperature influence on the measurement value is not known and the temperature compensation can not be used.

The measuring tray of the refractometers consists of a smooth stainless steel surface and allows for a simple and thorough cleaning in order to rule out measurement inaccuracies due to a sample carry-over. When working manually, the measuring tray is cleaned with a cleaning agent recommended for the respective sample and a soft cloth; in case of semi and fully automatic work through rinsing or displacement.

A special sample cover prevents the sample from evaporating and from an unintended exposure to light during the measurement and supports an even temperature distribution in the sample. An integrated measured data storage saves up to 99 user-defined measurement methods as well

as the last 999 measurement results. The refractometers of the DR6000 series feature USB, RS-232-and Ethernet interfaces. This allows you to also connect devices such as a PC, printer, barcode scanner, keyboard and mouse. A user management with several authorisation levels protects the settings against accidental changes.

The DR6000 series meets all the requirements of the GMP/GLP incl. international standards and guidelines such as 21 CFR Part 11 (Audit Trail), OIML, ASTM, ICUMSA. Our refractometers are perfectly suited for the use in FDA regulated areas.



Manual sample supply with **DR6000** series

INFOBOX

CALIBRATION AND ADJUSTMENT

The refractometer should be inspected on a regular basis to ensure that it delivers reliable measurement results. An easier method is the testing of the water value. The refractive index (nD) of distilled water at 20°C (589 nm) is exactly 1.33299. If this value is not met, you can use the tare function to carry out a one-point adjustment; the device adjustment is compared with the currently measured value. Certified, traceable standards, which we also use for every commissioning, IQ/OQ/PQ or annual maintenance work, are recommended for a subsequent calibration in order to validate the specified measurement accuracies of our devices.

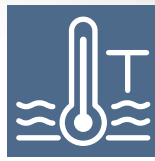
TEMPERATURE COMPENSATION

A temperature control of the measurement sample is not required when sugary beverages and confectionary products are measured. A conversion table published by the ICUMSA, which shows the influence of temperature on the refractive index of sucrose, glucose, fructose and invert sugar solutions, makes this possible. Since the influence of the temperature on the measured value is known, it is possible to take measurements at any ambient temperature and to automatically convert them to the desired reference temperature – often 20°C. Temperature differences will also be automatically compensated.

DR6200 temperature controlled with an external thermostat



TEMP. COMPENSATION



THERMOSTAT TEMP. CONTROL

DR6000

DR6100

TEMPERATURE CONTROL	Without a sample temperature control, you can connect a thermostat for the temperature control	
TEMP. CONTROL RANGE		
ACCURACY OF TEMP. CONTROL		
TEMPERATURE COMPENSATION	Can be activated (ICUMSA or freely definable)	
SCALES	Refractive index (nD) concentration of sucrose, glucose, fructose and invert sugar [%Brix], User-defined	
MEASUREMENT RANGE	nD 1.3200–1.5800 0–95%Brix	nD 1.3200–1.7000 0–95%Brix
MEASUREMENT ACCURACY	nD ±0.0001 ±0.1 %Brix	
RESOLUTION	nD 0.0001 0.1 %Brix	
MEASUREMENT PERIOD	approx. 4 s	
MEASUREMENT PRISM	Sapphire	
LIGHT SOURCE	LED	