

For High Refractive Index Applications

The J257 Series of Automatic Refractometers

TECHNICAL BULLETIN 912



APPLICATION

The J257 is designed as a multi purpose refractometer useful for a broad range of refractive index applications. The wide refractive index range of 1.26-1.70 means that this instrument can measure many materials that a refractometer with a food refractive index range of 1.33 – 1.53 cannot.

OPERATION

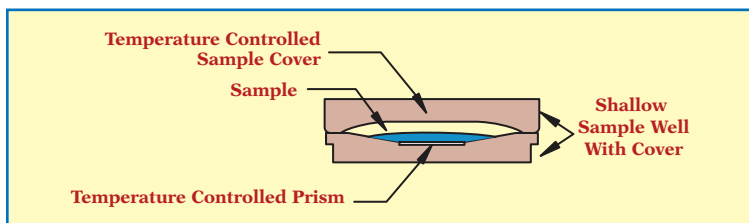
Operating the J257 is as simple as placing a sample on the prism, closing the cover and reading the answer – all in just a few seconds. There are no shadow lines to match and there is no eyepiece requiring any kind of operator determination or manual adjustment. When the “measure when stable mode” is selected, the J257 automatically waits until the sample has been heated or cooled to a predefined temperature before initiating a measurement.

INTERFACE

A large 7.5 cm x 10cm cold cathode fluorescent back lit graphics LCD allows the scale, sample temperature, set temperature, air temperature, time, date and temperature correction status to be easily viewed. All functions are activated through a touchscreen panel which will not wear out or get misplaced like traditional or detachable keypads. The touchscreen is resistant to fingernails, sharp objects, chemicals, and acids.

DUAL TEMPERATURE CONTROL SYSTEM

Unlike other temperature controlled refractometers, the J257 has temperature control from both above and below the sample. The sample cover is controlled to the same temperature as the prism and, when lowered, is designed to provide a temperature controlled micro environment that provides unrivaled temperature stability, fast measurement time and minimal evaporation. Depending on options, the sample cover can also be used to initiate measurement. This means that the operator doesn't even need to touch the refractometer screen on a day to day basis, simply lower the cover and measurement starts automatically.



OPTIONAL SAMPLE PRESSER

The J257 is available with an optional Temperature Controlled Sample **Presser** that touches the sample. Compared with the standard temperature controlled **Cover**, the optional **Presser** reduces the empty volume of the measurement area thereby decreasing evaporation and at the same time helping to evenly spread semi solid materials over the measurement prism. These features offer improved performance on many samples.



EASY TO CLEAN

No matter how good the refractometer is, accurate results will only be obtained if the prism is clean. The Rudolph J Series offers a flat, easy to clean prism that makes this process simple even with sticky samples.

USER DEFINED SCALES

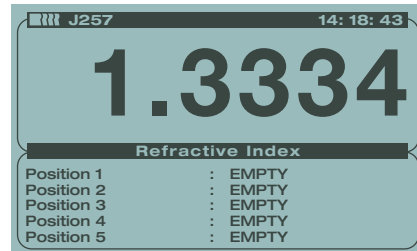
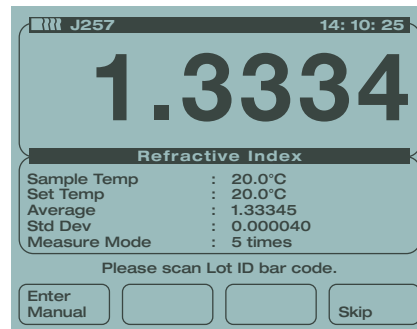
The J257 can be supplied with a large range of standard and customized scales. Scales can be customized in a few minutes. Simply enter 2, 6 or 10 points of concentration vs. corresponding RI data, and the instrument calculates the custom scale automatically for you.

CALIBRATION

The J257 offers 1 point, 2 point or a full multi-point calibration. Calibration can be done at 20°C, 25°C or any user selectable temperature within the available range. Regardless of how many times the refractometer has been calibrated, it can always be restored to the initial factory calibration if required.

USER CONFIGURABLE

Versatile instruments have the advantage of being able to display a lot of information, however this versatility can also lead to confusion, with extra buttons and by forcing operators to interpret extra information that may have no relevance to their application. The J Series customizable display allows the instrument to be configured to exactly what is required for each application. The customizable keypad can be “locked out” or just a few keys can be operable, i.e. the measure key, print key, zero key, customer specified sample keys or any combination thereof. The lockout function, calibration and other functions are all password protected.



DURABILITY

The J Series Refractometer offers a sapphire prism for high mechanical and chemical durability. The sample well is made of acid resistant 316 stainless steel with a techtron sealing ring. There is no lamp to change, the LED light source is guaranteed for 1,000,000 measurements.

OPTIONS AND ACCESSORIES

- NIST traceable calibration liquids
- IQ/OQ/PQ package
- Acid resistant sample well and plate
- Printer
- Pre programmed custom scale
- Data capture software
- Small volume sample well
- Different measurement wavelengths
- Barcode reader

Refractometer Specifications - J257

Measurement Scales: Refractive Index (RI), BRUX (% sucrose), and 100 User Programmable Scales

Measurement Range: 1.26 - 1.70 RI, 0 - 100 BRUX

Resolution: 0.0001 RI

Reproducibility: ±0.0001 RI, ±0.1 BRUX

Accuracy: ±0.0001 RI, ±0.1 BRUX

Optical Wavelength: 589.3nm (other wavelengths available)

Measurement Time: User configurable
– generally less than 30 seconds

Communication Interface: Two RS232 ports, one parallel printer port

Temp. Control Range: 15°C - 70°C

Temp. Accuracy: 0.05°C

Ambient Temp. Limit: 10°C - 40°C

Temp. Correction Range: 18°C - 95°C (for pure sucrose solutions)

Calibration: Using water or NIST traceable standards

Operating Dimensions/Weight: L: 15 1/2" W: 10" H: 4 1/2" / 23 lbs.
L: 39.5cm W: 25.5cm H: 11.5cm / 10.4kg

Power Requirements: 100-240 volts, 50 Hz - 60 Hz