

# The J157 Series of Automatic Refractometers

---

**TECHNICAL BULLETIN 911**



## TOUCHSCREEN AND LCD

A large 7.5cm 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.

## ELECTRONIC TEMPERATURE CONTROL

The J157 Automatic Refractometer eliminates the expense and contamination associated with using circulating waterbaths to control and maintain the sample temperature by utilizing state of the art Peltier technology with built-in cooling and heating in both the presser head and surrounding the prism. The J157's two electronic cooling and heating systems, along with a thermally isolated platinum RTD sample temperature sensor, give the J157 accuracy and measurement advantages over other commercially available refractometers which only use the prism to measure and control temperature. The J157 can control any temperature between 10°C and 70°C to better than 0.05°C. Just set the temperature to 20°C, 25°C, 27.5°C or any temperature within the available range and the refractometer will automatically cool or heat the sample to the set temperature.

## SIMPLE YET FLEXIBLE

Operating the J157 is as simple as placing a sample on the prism, closing the presser 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 J157 automatically waits until the sample has been heated or cooled to a predefined temperature before initiating a measurement. Custom scales can be set in a few minutes. Simply enter 6 to 10 points of your product's scale with a corresponding RI value, press calculate and you are done. The entire 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.

These features make the J157 ideal for process situations or where more than one operator is responsible for measurement and most importantly – you don't have to wait for the waterbath to reach the correct temperature and you never have to worry about any visual interpretations at all.

## CALIBRATION

The J157 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.



## OPTIONS AND ACCESSORIES

- NIST Traceable Calibration liquids from 1.33 – 1.70.
- Continuous Flow, Micro Flow and Pour-In Style Pressers allow samples to be continuously monitored or poured directly from a beaker. The J157 Standard Presser is easily removable with a captured hinge pin and replaced with a Pour-In Presser or a Continuous Flow Presser. The volume required for measurement is presser and application specific, however, volumes less than 1ml can be measured with the appropriate presser. Please contact the factory for more details.
- IQ/OQ/PQ Packages available.

# Refractometer Specifications - J157

<b>Measurement Scales:</b>	Refractive Index (RI), BRIX (% sucrose) Temperature Corrected BRIX, Temperature Corrected RI, Urine SG and 10 User Programmable Scales	<b>Analog Control:</b>	0-10 volts, 4-20 mA (optional)
<b>Measurement Range:</b>	1.33 - 1.53 RI, 0 - 95 BRIX, 1.0000 - 1.0400 Urine SG	<b>Temp. Control Range:</b>	10°C - 40°C (STD), 10°C - 70°C (Optional)
<b>Resolution:</b>	0.00001 RI, 0.01 BRIX, 0.0001 Urine SG	<b>Temp. Accuracy:</b>	0.05°C
<b>Reproducibility:</b>	±0.00002 RI, ±0.015 BRIX, ±0.0001 Urine SG	<b>Ambient Temp. Limit:</b>	10°C - 40°C
<b>Accuracy:</b>	±0.00004 RI, ±0.03 BRIX, ±0.0001 Urine SG	<b>Temp. Correction Range:</b>	18°C - 40°C (for pure sucrose solutions)
<b>Optical Wavelength:</b>	589.3nm	<b>Temp. Measurement &amp; Control:</b>	Prism surface and in the presser
<b>Prism:</b>	Artificial Sapphire	<b>Calibration:</b>	1, 2 or full multi-point calibration
<b>Light Source:</b>	Light Emitting Diode (est. life: >100,000 hrs.)	<b>Operating Dimensions/Weight:</b>	L: 15 1/2" W: 10" H: 5" / 23 lbs. L: 39.5cm W: 25.5cm H: 13cm / 10.4kg
<b>Response Time:</b>	Continuous readout or user programmable delay (i.e. a 25°C sample can be cooled to 20°C and measured in 20 seconds)	<b>Shipping Dimensions/Weight:</b>	L: 26" W: 21" H: 16" / 30 lbs. L: 66cm W: 53.5cm H: 41cm / 14kg
<b>Communication Interface:</b>	Two RS232 ports, one parallel printer port and one auxiliary port	<b>Power Requirements:</b>	100-240 volts, 50 Hz - 60 Hz