

For High Throughput Applications

The J57 Series of Automatic Refractometers

TECHNICAL BULLETIN 915



APPLICATION

The J57 was designed to meet the unique needs of industrial environments where the refractometer is operated on the factory floor. A single flat measurement surface, electronic temperature control, and one button measurement capability make it perfect for high wear and tear and heavy use applications.

AUTOMATIC MEASURING SYSTEM

The Rudolph J57 features a fully automatic measuring system. The operator simply places the sample on the prism, presses a button and the result is displayed on 7.5cm x 10cm back lit LCD. There are no shadow lines to match and there is no eyepiece requiring operator determination or manual adjustment.

ELECTRONIC TEMPERATURE CONTROL

Refractive Index (Brix) readings are very sensitive to temperature. Most refractometers have the ability to correct for temperature, but this correction only works accurately with limited types of samples. Users looking for real accuracy had to spend the extra money for a circulating water bath and then clean and maintain it. The J57's built in electronic temperature control provides the best of both worlds, the absolute accuracy of a temperature controlled instrument with the convenience of not requiring a water bath.

EASY TO CLEAN MEASUREMENT SURFACE

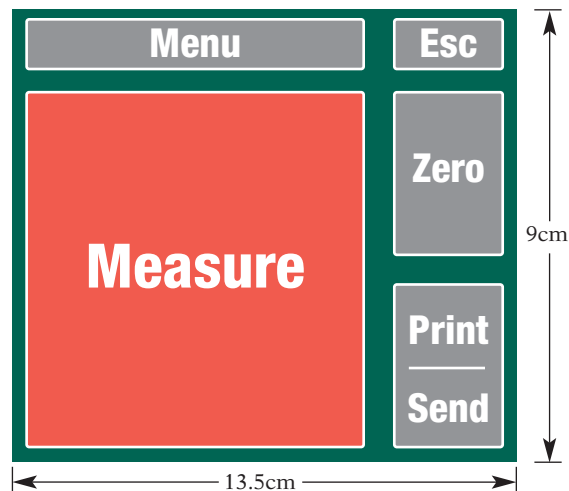
Unlike traditional Abbe refractometers, the J57 has only 1 measurement surface; there is no second prism to close on top of the sample. The measurement surface is very flat with no corners, crevices, or deep sample wells making the J57 exceptionally easy to clean.

HIGH DURABILITY SAPPHIRE PRISM

When a traditional refractometer is used in a high throughput application, prism replacement becomes a regular task. The reason for replacement is that Abbe refractometers have glass prisms (hardness approximately 6 on the Moh's scale) compared with the J57's artificial sapphire prism (hardness 9 on the Moh's scale). By making the prism from artificial sapphire the need to replace the prism is avoided and total cost of ownership is lowered. Prism replacement is a regular task when Abbe style refractometers are used in high throughput environments.

TOUCHSCREEN AND LCD

All functions are activated through a large touch screen LCD. The 70mm x 75mm measure button on the J57 is designed to allow an operator wearing gloves to activate measurement with an elbow or the side of a hand. The sealed touch screen is resistant to fingernails, sharp objects, chemicals and acids.



PASSWORD PROTECTION

A combination of password protection and being able to lock out specific "keys" enables control over which users can access certain functions. This means that the J57 can be set up as a one-button instrument for factory environments.

PRINTER & COMPUTER OUTPUT

In today's highly regulated environment many users find hard copy or computer record keeping essential. The J57 comes complete with a standard centronics port for a printer and an RS232 port for direct computer connection.

CALIBRATION

The J57 offers 1 or 2 point calibration. The instrument stores the date and time of last calibration in line with ISO and similar standards. Regardless of how many times the refractometer has been calibrated it can always be restored to the default factory calibration.

Refractometer Specifications - J57

Measurement Scales:	Refractive Index (RI), BRUX (% sucrose) Urine Specific Gravity	Control Temperature:	20°C or 25°C (Customer specified)
Measurement Range:	1.33 – 1.53 RI, 0 – 95 BRUX, 1.00 – 1.04 Urine SG	Temp. Accuracy:	0.05°C
Resolution:	0.00001 RI, 0.01 BRUX, 0.0001 Urine SG	Ambient Temp. Limit:	10°C – 40°C
Reproducibility:	±0.00002 RI, ±0.015 BRUX, ±0.0001 Urine SG	Temp. Correction Range:	18°C – 40°C (for pure sucrose solutions)
Accuracy:	±0.00004 RI, ±0.03 BRUX, ±0.0001 Urine SG	Temp. Measurement & Control:	Prism surface
Optical Wavelength:	589.3nm	Calibration:	1, 2 or full multi-point calibration
Prism:	Artificial Sapphire	Operating Dimensions / Weight:	L: 15 1/2" W: 10" H: 4 1/2" / 23 lbs. L: 39.5cm W: 25.5cm H: 11.5cm / 10kg
Light Source:	Light Emitting Diode (est. life: >100,000 hrs.)	Shipping Dimensions / Weight:	L: 26" W: 21" H: 16" / 30 lbs. L: 66cm W: 53.5cm H: 41cm / 14kg
Response Time:	Continuous readout or user programmable delay (i.e. a 25°C sample can be cooled to 20°C measured in 40 seconds)	Power Requirements:	100 – 240 volts, 50 Hz – 60 Hz
Communication Interface:	Two RS232 ports, one parallel printer port and one auxiliary port		