CLINICAL REFRACTOMETERS

Refractive index of a solution varies according to its concentration. Hence, its concentration is obtained from its refractive index. The refractive index of blood serum or plasma depends mainly upon its protein concentration, as proteins are one of the major constituents. This instrument has been designed to use the refractive index method for measuring total protein in serum. The protein scale has been prepared after extensive clinical analyses undertaken by Dr. Matsumura, Professor of Biochemistry at the Tokyo Woman's Medical University. The scale developed by Dr. Matsumura is based on the results obtained from over 1400 cases and has been incorporated into ATAGO refractometers. This is the most reliable scale currently available. As the same as serum protein, there is a correlation between refractive index by a refractometer and urine specific gravity by a hydrometer. Urine specific gravity can be taken from refractive index.

Digital Urine Specific Gravity Refractometer  **UG-α**  Cat.No.3464

This new Digital Urine Specific Gravity Refractometer UG-α (alpha) is an upgraded version of the UG-1. The minimum scale indication has been improved to display the fourth decimal. After pressing the START key, with the sample placed on the prism, the measurement values will be displayed on the LCD streaming as an electric message board.

<table>
<thead>
<tr>
<th>Measurement range</th>
<th>Urine S.G. 1.0000 to 1.0600</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimum indication</td>
<td>0.0001</td>
</tr>
<tr>
<td>Measurement accuracy</td>
<td>±0.0010</td>
</tr>
<tr>
<td>Measurement temperature</td>
<td>10 to 35°C (Automatic Temperature Compensation)</td>
</tr>
<tr>
<td>Sample volume</td>
<td>0.1ml</td>
</tr>
<tr>
<td>Power supply</td>
<td>006P Dry battery (9V)</td>
</tr>
<tr>
<td>International Protection Class</td>
<td>IP64 Water Resistant</td>
</tr>
<tr>
<td>Dimensions and weight</td>
<td>17×9×4cm, 300g (main unit only)</td>
</tr>
</tbody>
</table>

**Measurement Method**

1. Apply 1 drop of sample solution onto the prism surface.
2. Press the START/OFF Switch.
3. Measurement value displayed in 3 seconds!

The measurement value will scroll from right to left.

*Example of display
Display of the measurement value “1.0356”.

Digital Hand-held Compact Refractometer **PAL-10S**  Cat.No.4410

The PAL-10S is a digital hand-held compact refractometer that measures Urine Specific Gravity. To operate, simply place a drop of urine on the prism surface and press the START key. The Urine Specific Gravity value will be displayed on the LCD.

<table>
<thead>
<tr>
<th>Measurement range</th>
<th>Urine S.G. 1.000 to 1.060</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimum indication</td>
<td>0.001</td>
</tr>
<tr>
<td>Measurement accuracy</td>
<td>±0.001</td>
</tr>
<tr>
<td>Measurement temperature</td>
<td>10 to 35°C (Automatic Temperature Compensation)</td>
</tr>
<tr>
<td>Sample volume</td>
<td>0.3ml</td>
</tr>
<tr>
<td>Power supply</td>
<td>2×AAA Batteries</td>
</tr>
<tr>
<td>International Protection Class</td>
<td>IP65 Water Resistant</td>
</tr>
<tr>
<td>Dimensions and weight</td>
<td>5.5×3.1×10.9cm, 100g (main unit only)</td>
</tr>
</tbody>
</table>

Ergonomically designed for one-handed operation!

Can be washed under running water.
The MASTER-SUR/Nα and MASTER-SUR/NM are designed for clinical applications: Serum Protein, Urine Specific Gravity and Refractive Index scales. Three scales in one instrument allow for quick and easy measurements.

**MASTER-SUR/Nα**
- Cat.No.2771
- Scale range: Urine S.G.: 1.000 to 1.060, Serum protein: 0.0 to 12.0g/100ml, Refractive Index (nD): 1.333 to 1.3660
- Minimum scale: Urine S.G.: 0.001, Serum protein: 0.2g/100ml, Refractive Index: 0.0005
- International Protection Class: IP65 Water Resistant (except for eyepiece)
- Size & Weight: 3.2×3.4×20.7cm, 110g

**MASTER-SUR/NM**
- Cat.No.2773
- Scale range: Urine S.G.: 0.001, Serum protein: 0.2g/100ml, Refractive Index: 0.0005
- Minimum scale: Urine S.G.: ±0.001, Serum protein: ±0.2g/100ml, Refractive Index: (nD)±0.0005
- International Protection Class: Non Water Resistant
- Size & Weight: 3.2×3.4×20.7cm, 110g

**URINE SPECIFIC GRAVITY REFRACTOMETER**
- **MASTER-URC/Nα**
  - Cat.No.2791
  - Scale range: Urine S.G.: ±0.001, Refractive Index: (nD)±0.0005
  - Minimum scale: Urine S.G.: 1.000 to 1.050, Refractive Index (nD): 1.333 to 1.356
  - International Protection Class: IP65 Water Resistant (except for eyepiece)
  - Size & Weight: 3.2×3.4×20.7cm, 110g

- **MASTER-URC/NM**
  - Cat.No.2793
  - Scale range: Urine S.G.: ±0.001, Refractive Index: (nD)±0.0005
  - Minimum scale: Urine S.G.: 1.000 to 1.050, Refractive Index (nD): 1.333 to 1.356
  - International Protection Class: Non Water Resistant
  - Size & Weight: 3.2×3.4×20.7cm, 110g

All ATAGO refractometers are designed and manufactured in Japan.

*Specifications and appearance are subject to change without notice.*