Soy milk, Butter (Magnesium chloride)
Cat. No. Model name Scale
4427 PAL-315 Soy milk
4443 PAL-41S Butter (Magnesium chloride)

Cooking
Cat. No. Model name Scale
4489 PAL-90S Chinese noodle soup
4492 PAL-Pocket Chinese noodle soup (Sea of Kansei)
4498 PAL-95S Condiment

Sodium tungstate

Copper sulfate

Zinc sulfate
Creatine

Sodium bromide

Pocket

Sodium nitrate

Silica

Copper sulfate

Manganese sulfate

Sodium thiosulfate

Pocket

Sodium chloride (NaCl)

Sodium chloride (gNaCl)

Sodium chloride (Sea of Japan)

Sea water

Cutting oil

Sodium carbonate

Sodium bicarbonate

Glucose

Cutting oil

Isopropanol

Hand inspection, Testing

Caramel color

Copper sulfate (Concentration)

Preparation (Concentration)

Sodium thiosulfate

Sodium sulfate

Sodium lactate

Potassium phosphate

Alkaline liquid

Artificial leather, Fabric

Cat. No. Model name Scale
4458 PAL-35S Dimethylformamide

Pasta

Cat. No. Model name Scale
4421 PAL-215 Dextrin

Snow-melting agent

Cat. No. Model name Scale
4403 PAL-035 Snow-melting agent

Coolant (Double scale)

Cat. No. Model name Scale
4408 PAL-665 Propylene glycol

4409 PAL-405 Polyethylene glycol

4401 PAL-915 Ethylene glycol

4402 PAL-925 PVC (Ethylene glycol + PVC (Ethylene glycol))

Chemical products

Cat. No. Model name Scale
4423 PAL-235 Glycerin (Low concentration)

4424 PAL-445 Glycerin (High concentration)

4420 PAL-365 Acetic acid

Over 80 scales available!
"The PAL sets the stage for the world of refractometry in the 21st century."

**A new ergonomic design for comfort and ease of use!**

In pursuit of an “easy to use,” “easy to operate” and ergonomic architecture of new instruments, ATAGO has achieved a “palm-fitting” masterpiece as well as a unit that is high in hygienic properties. By reducing the number of unnecessary assembly parts, we have reduced the risks of a germ reproductive environment. Through our efforts to produce a hygienic instrument to be used in any industry, these units are designed to be completely washable. The new Pocket PAL series has been approved by the HACCP, and are equipped with the new ELI feature, which ensures accurate measurements—even outdoors. Requests from our customers worldwide are reflected in the development of the new PAL units.

### Names and Functions of Components

| The PAL can be operated with one hand. |

#### Sample Stage
The sample stage allows for the sample temperature to conform quickly and evenly to the sample temperature for accurate measurements.

#### Liquid Crystal Display (LCD)
Accurate measurements are displayed as large and easy to read.

#### Prism
Made of highly durable optical glass to prevent scratching.

#### ZERO Key
For Zero Setting, place water on the prism and press.

#### START Key
Conveniently located for single-hand operation.

#### Strap Holder
Suitable for wrist straps or lanyards.

#### Convenient storage case

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### Main Features

- Always clean and shiny - can be cleaned under running water.
- The innovative design makes it easy to pour out and remove a sample, but difficult to spill the sample.
- Revolutionary new feature ELI*.
- Calibrate with water - no more standard solutions.
- Light & Compact, 100g
- Automatic Temperature Compensation (ATC)
- Ergonomically designed for one-handed operation.

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### Measurement Method

1. Apply 2-3 drops onto the prism surface.
2. Press the START key.
3. Brix(%) value displayed in 3 seconds!

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### Application

- In fruit and vegetable farming orchards
- At beverage factories... tea, juices, coffee, soft drinks, etc.
- At food factories... sauces, various sauces, etc.
- For Zero Setting, place water on the prism and press.
- At restaurants or food shops
- In junior high, high schools, or universities as a course material

### Specifications

<table>
<thead>
<tr>
<th>PAL-1</th>
<th>PAL-2</th>
<th>PAL-3</th>
<th>PAL-α</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model</td>
<td>PAL-1</td>
<td>PAL-2</td>
<td>PAL-3</td>
</tr>
<tr>
<td>Cat. No.</td>
<td>3810</td>
<td>3820</td>
<td>3830</td>
</tr>
<tr>
<td>Brix</td>
<td>Brix 0.0~3.0%</td>
<td>Brix 0.0~3.0%</td>
<td>Brix 0.0~3.0%</td>
</tr>
<tr>
<td>Resolution</td>
<td>Brix 0.1%</td>
<td>Brix 0.1%</td>
<td>Brix 0.1%</td>
</tr>
<tr>
<td>Accuracy</td>
<td>Brix ±0.2%</td>
<td>Brix ±0.1%</td>
<td>Brix ±0.1%</td>
</tr>
<tr>
<td>Repeatability</td>
<td>Brix ±0.1%</td>
<td>Brix ±0.1%</td>
<td>Brix ±0.1%</td>
</tr>
<tr>
<td>Measurement Range</td>
<td>Brix 0.0~3.0%</td>
<td>Brix 0.0~3.0%</td>
<td>Brix 0.0~3.0%</td>
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<tr>
<td>Ambient Temperature</td>
<td>10~75°C</td>
<td>Automatic Temperature Compensation</td>
<td>10~40°C</td>
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<tr>
<td>Power Supply</td>
<td>AAA alkaline battery</td>
<td>X2</td>
<td></td>
</tr>
<tr>
<td>Battery Life</td>
<td>Approx. 11,000 measurements</td>
<td>(When using new alkaline batteries)</td>
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</tr>
<tr>
<td>International Protection Class</td>
<td>IP65</td>
<td>Water Resistant</td>
<td></td>
</tr>
<tr>
<td>Dimensions and Weight</td>
<td>65(W)X31(D)X109(H)mm, 100g (main unit only)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>