

# Pocket Refractometer

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Pocket >> Palm >> Perform  
IoT Supported  
With NFC Technology

Pocket Refractometer

PAL series

|    |                                          |
|----|------------------------------------------|
| JP | PAT# 4094972, PAT# 4467933, PAT# 4889772 |
| US | PAT# 7,492,447 B2                        |



Pocket >> Palm >> Perform  
IoT Supported  
With NFC Technology

Pocket Refractometer

PAL series



Detail page of each product is here

Choose model

▼

PRODUCT LINEUP

Popular Model

|                                                                                     |                                                                                     |                                                                                      |                                                                                       |                                                                                      |
|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|
| PAL-3                                                                               | PAL-1                                                                               | PAL-α                                                                                | PAL-H                                                                                 | PAL-S                                                                                |
| Wide & High Accuracy                                                                | The Most Popular                                                                    | Wide Range                                                                           | High Temperature                                                                      | Milky sample                                                                         |
|   |   |   |   |  |
| PAL-BX/RI                                                                           | PAL-RI                                                                              | PAL-2                                                                                | PAL-LOOP                                                                              |                                                                                      |
| Brix & Refractive Index                                                             | Refractive Index                                                                    | Brix                                                                                 | Brix                                                                                  |                                                                                      |
|  |  |  |  |                                                                                      |

Special scales

|                                                                                     |                                                                                     |                                                                                      |                                                                                       |                                                                                       |
|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| Coffee                                                                              | Pâtissier                                                                           | Honey Moisture                                                                       | Brine                                                                                 | Ramen                                                                                 |
|  |  |  |  |  |
| Soy Milk                                                                            | Condiment                                                                           | Cutting oil                                                                          | Urea                                                                                  | H <sub>2</sub> O <sub>2</sub>                                                         |
|  |  |  |  |  |
| Urine S.G                                                                           | Ethylene Glycol                                                                     | Sodium hydroxide                                                                     | Cleaning agent                                                                        | Soil                                                                                  |



PAL Special scales list

Cooking

| Model                    | Scale                   |
|--------------------------|-------------------------|
| <b>PAL-96S</b>           | Soup<br>Baume of Kansui |
| <b>Ramen Meister Set</b> | Soup<br>Salt            |
| <b>Dashi Meister Set</b> | Dashi<br>Salt           |
| <b>PAL-98S</b>           | Condiment               |
| <b>PAL-Pâtissier</b>     | Brix<br>Baume           |

Brine

| Model           | Scale           |
|-----------------|-----------------|
| <b>PAL-03S</b>  | Brine (g/100g)  |
| <b>PAL-106S</b> | Brine (g/100mL) |
| <b>PAL-04S</b>  | Brine           |
| <b>PAL-05S</b>  | Baume of Brine  |

Spirit / Beer

| Model              | Scale                    |
|--------------------|--------------------------|
| <b>PAL-Whiskey</b> | Ethyl alcohol (mL/100mL) |
| <b>PAL-Vodka</b>   | Ethyl alcohol (mL/100mL) |
| <b>PAL-Tequila</b> | Ethyl alcohol (mL/100mL) |
| <b>PAL-Shochu</b>  | Ethyl alcohol (mL/100mL) |
| <b>PAL-Gin</b>     | Ethyl alcohol (mL/100mL) |
|                    |                          |

Soymilk / Nigari

| Model          | Scale              |
|----------------|--------------------|
| <b>PAL-27S</b> | Soymilk            |
| <b>PAL-43S</b> | Magnesium chloride |

Honey

| Model          | Scale          |
|----------------|----------------|
| <b>PAL-22S</b> | Honey Moisture |
| <b>PAL-2</b>   | Brix           |

Seawater

| Model                | Scale                     |
|----------------------|---------------------------|
| <b>PAL-06S</b>       | Seawater                  |
| <b>PAL-07S</b>       | Seawater specific gravity |
| <b>PAL-08S</b>       | Baume of Seawater         |
| <b>PAL-Fish Tank</b> | Seawater                  |

Carp Set

| Model                  | Scale       |
|------------------------|-------------|
| <b>Koi Meister Set</b> | Brine<br>pH |

Alcohol

| Model          | Scale                      |
|----------------|----------------------------|
| <b>PAL-33S</b> | Ethyl alcohol (mL/100mL)   |
| <b>PAL-34S</b> | Ethyl alcohol (g/100g)     |
| <b>PAL-36S</b> | Methyl alcohol             |
| <b>PAL-37S</b> | Isopropyl alcohol (g/100g) |
|                | Isopropyl alcohol          |

Coffee

| Model                      | Scale             |
|----------------------------|-------------------|
| <b>PAL-COFFEE</b>          | Coffee (Brix)     |
| <b>PAL-COFFEE (TDS)</b>    | Coffee (TDS)      |
| <b>PAL-COFFEE (BX/TDS)</b> | Coffee (Brix&TDS) |

Tea

| Model          | Scale |
|----------------|-------|
| <b>PAL-Tea</b> | Tea   |

Milk

| Model           | Scale               |
|-----------------|---------------------|
| <b>PAL-MILK</b> | Non-fat milk solids |

Sterilization

| Model          | Scale                         |
|----------------|-------------------------------|
| <b>PAL-39S</b> | H <sub>2</sub> O <sub>2</sub> |

Sugar

| Model          | Scale          |
|----------------|----------------|
| <b>PAL-12S</b> | Dextran        |
| <b>PAL-14S</b> | Fructose       |
| <b>PAL-15S</b> | Glucose        |
| <b>PAL-16S</b> | HFCS-42        |
| <b>PAL-17S</b> | HFCS-55        |
| <b>PAL-18S</b> | Inverted suger |
| <b>PAL-19S</b> | Lactose        |
|                |                |



|                   |                          |
|-------------------|--------------------------|
| <b>PAL-Rum</b>    | Ethyl alcohol (mL/100mL) |
| <b>PAL-Brandy</b> | Ethyl alcohol (mL/100mL) |
| <b>PAL-Plato</b>  | Plato                    |

### Moisture

| Model               | Scale    |
|---------------------|----------|
| <b>PAL-Moisture</b> | Moisture |

### Dried fruit

| Model                           | Scale    |
|---------------------------------|----------|
| <b>PAL-Dried Fruit Moisture</b> | Moisture |

### Colostrum

| Model                | Scale     |
|----------------------|-----------|
| <b>PAL-Colostrum</b> | Colostrum |

### Metal Processing / Automobile

| Model                    | Scale           |
|--------------------------|-----------------|
| <b>PAL-102S</b>          | Cutting oil     |
| <b>PAL-Antirust</b>      | Anti-Rust Agent |
| <b>PAL-Release Agent</b> | Releasing Agent |
| <b>PAL-Urea</b>          | Urea            |

### Medical

| Model                             | Scale           |
|-----------------------------------|-----------------|
| <b>PAL-10S</b>                    | Urine S.G       |
| <b>PAL-Easy SALT</b>              | Salt            |
| <b>PAL-1</b>                      | Brix            |
| <b>ATAGO DEHYD-RATION CHECKER</b> | Brix            |
| <b>PAL-11S</b>                    | Serum protein   |
| <b>PAL-42S</b>                    | Cesium chloride |
|                                   |                 |

|                 |                   |
|-----------------|-------------------|
| <b>PAL-131S</b> | (mL/100mL)        |
| <b>PAL-85S</b>  | Polyvinyl alcohol |

### Wine

| Model          | Scale                               |
|----------------|-------------------------------------|
| <b>PAL-79S</b> | T.A.1990                            |
| <b>PAL-80S</b> | T.A.1971                            |
| <b>PAL-83S</b> | KMW (or Babo)                       |
| <b>PAL-84S</b> | Baume                               |
| <b>PAL-86S</b> | Oe (GER)<br>Brix                    |
| <b>PAL-87S</b> | Oe (Oechsle)<br>Brix<br>Temperature |

### Food Additive

| Model          | Scale               |
|----------------|---------------------|
| <b>PAL-29S</b> | Citric acis         |
| <b>PAL-30S</b> | Acetic acid         |
| <b>PAL-32S</b> | Phosphoric acid     |
| <b>PAL-64S</b> | Sodium bicarbonate  |
| <b>PAL-65S</b> | Sodiun tartrate     |
| <b>PAL-70S</b> | Potassium phosphate |

### Snow-melting Agent

| Model           | Scale                                      |
|-----------------|--------------------------------------------|
| <b>PAL-03CS</b> | Snow-melting Agent<br>(Sodium chloride)    |
| <b>PAL-03S</b>  | Snow-melting Agent<br>(Sodium chloride)    |
| <b>PAL-41S</b>  | Snow-melting Agent<br>(Calcium chloride)   |
| <b>PAL-43S</b>  | Snow-melting Agent<br>(Magnesium chloride) |

### Printing

|  |  |
|--|--|
|  |  |
|--|--|

|                |         |
|----------------|---------|
| <b>PAL-20S</b> | Maltose |
|----------------|---------|

| Coolant / Antifreeze / Heat refrigerant liquid / Cryoprotectant |                                      |
|-----------------------------------------------------------------|--------------------------------------|
| Model                                                           | Scale                                |
| <b>PAL-88S</b>                                                  | Propylene glycol<br>Freezing point°C |
| <b>PAL-91S</b>                                                  | Ethylene glycol<br>Freezing point°C  |

### Cleaning agent

| Model                          | Scale                                |
|--------------------------------|--------------------------------------|
| <b>PAL-Cleaner</b>             | Dextran                              |
| <b>PAL-Hydrocarbon Cleaner</b> | Hydrocarbon Cleaner<br>contamination |

### Leather / Textile

| Model          | Scale             |
|----------------|-------------------|
| <b>PAL-38S</b> | Dimethylformamide |

### Chemical

| Model          | Scale              |
|----------------|--------------------|
| <b>PAL-23S</b> | Glycerin (Low)     |
| <b>PAL-24S</b> | Glycerin (high)    |
| <b>PAL-30S</b> | Acetic acid        |
| <b>PAL-31S</b> | Formic acid        |
| <b>PAL-32S</b> | Phosphoric acid    |
| <b>PAL-44S</b> | Lithium chloride   |
| <b>PAL-45S</b> | Barium chloride    |
| <b>PAL-46S</b> | Cobalt chloride    |
| <b>PAL-47S</b> | Ferric chloride    |
| <b>PAL-48S</b> | Strontium chloride |
| <b>PAL-49S</b> | Potassium chloride |
| <b>PAL-50S</b> | Potassium bromide  |
| <b>PAL-51S</b> | Sodium bromide     |
| <b>PAL-52S</b> | Potassium iodide   |
|                |                    |

|                |                               |
|----------------|-------------------------------|
| <b>PAL-53S</b> | Copper sulfate(Concentration) |
| <b>PAL-54S</b> | Copper sulfate(S.G.)          |

Animal

| Model                  | Scale               |
|------------------------|---------------------|
| <b>PAL-DOG&amp;CAT</b> | Dog&Cat Urine(S.G.) |
| <b>PAL-DOG</b>         | Dog Urine(S.G.)     |
| <b>PAL-CAT</b>         | Cat Urine(S.G.)     |
| <b>PAL-RABBIT</b>      | Rabbit Urine(S.G.)  |

Construction / Agriculture

| Model           | Scale                                           |
|-----------------|-------------------------------------------------|
| <b>PAL-Soil</b> | Soil Moisture<br>Soil sediment moisture content |

Alkaline solution

| Model          | Scale            |
|----------------|------------------|
| <b>PAL-40S</b> | Sodium hydroxide |

Refractive Index

| Model            | Scale                   |
|------------------|-------------------------|
| <b>PAL-BX/RI</b> | Brix + Refractive Index |
| <b>PAL-RI</b>    | Refractive Index        |

| Model           | Scale             |
|-----------------|-------------------|
| <b>PAL-37S</b>  | Isopropyl alcohol |
| <b>PAL-131S</b> | Isopropyl alcohol |

Pharmaceutical

| Model          | Scale                |
|----------------|----------------------|
| <b>PAL-12S</b> | Dextran              |
| <b>PAL-13S</b> | Creatine             |
| <b>PAL-23S</b> | Glycerin (Low)       |
| <b>PAL-24S</b> | Glycerin (High)      |
| <b>PAL-25S</b> | Inulin               |
| <b>PAL-26S</b> | Mannitol             |
| <b>PAL-31S</b> | Formic acid          |
| <b>PAL-32S</b> | Phosphoric acid      |
| <b>PAL-51S</b> | Sodium bromide       |
| <b>PAL-55S</b> | Magnesium sulfate    |
| <b>PAL-64S</b> | Sodium bicarbonate   |
| <b>PAL-65S</b> | Sodium tartrate      |
| <b>PAL-66S</b> | Potassium oxalate    |
| <b>PAL-68S</b> | Potassium dichromate |
| <b>PAL-70S</b> | Potassium phosphate  |
| <b>PAL-72S</b> | Sodium tungstate     |

|                |                      |
|----------------|----------------------|
| <b>PAL-53S</b> | Copper sulfate       |
| <b>PAL-54S</b> | Copper sulfate       |
| <b>PAL-55S</b> | Magnesium sulfate    |
| <b>PAL-56S</b> | Potassium sulfate    |
| <b>PAL-57S</b> | Nickel sulfate       |
| <b>PAL-58S</b> | Sodium sulfate       |
| <b>PAL-59S</b> | Zin sulfate          |
| <b>PAL-60S</b> | Silver nitrate       |
| <b>PAL-61S</b> | Sodium nitrate       |
| <b>PAL-62S</b> | Potassium carbonate  |
| <b>PAL-63S</b> | Sodium carbonate     |
| <b>PAL-64S</b> | Sodium bicarbonate   |
| <b>PAL-67S</b> | Potassium chlomate   |
| <b>PAL-68S</b> | Potassium dichromate |
| <b>PAL-69S</b> | Sodium thiosulfate   |
| <b>PAL-70S</b> | Potassium phosphate  |
| <b>PAL-71S</b> | Sodium molybdate     |
| <b>PAL-72S</b> | Sodium tungstate     |

Paste

| Model          | Scale   |
|----------------|---------|
| <b>PAL-21S</b> | Dextran |

Pocket Refractometer [Product details]

Digital Hand-held "Pocket" Refractometer PAL-3



Designed with a full Range (Brix 0.0 to 93.0%), the PAL-3 works perfectly for measuring almost any samples.This model has been modified to have a high measurement accuracy at +/-0.1% Brix, the highest accuracy model in PAL series.

| Specifications |       |
|----------------|-------|
| Model          | PAL-3 |
| Cat.No.        | 3830  |
|                |       |



Enlargement

|                          |                      |
|--------------------------|----------------------|
| Range                    | Brix : 0.0 to 93.0 % |
| Accuracy                 | ±0.1 %               |
| Temperature compensation | 10 to 100 ° C        |

Options

- MAGIC™ (for PAL) : RE-39411
- STRAP : RE-39410
- PAL-CASE : RE-39409
- PAL Silicone Cover : RE-39413
- 10% Sucrose (±0.03%) : RE-110010
- 20% Sucrose (±0.03%) : RE-110020
- 30% Sucrose (±0.03%) : RE-110030
- 40% Sucrose (±0.04%) : RE-110040
- 50% Sucrose (±0.05%) : RE-110050
- 60% Sucrose (±0.05%) : RE-110060

\* Calibration Certificate : Contact an ATAGO representative for details.

Patent for Invention Registration No. ZL200310103015.2 (China)

Patent for Design Registration No. ZL03303431.1 (China), 089244 (Taiwan)

Patent Granted in countries around the world.

The PAL-1 works perfectly in measuring almost any fruit juice, food, or drink, such as soup, sauce, ketchup, tomato sauce, low-sugar jam, or marmalade. PAL series comes with Data Transmission Function with NFC (Near Field Communication)technology.Data history can be accessed by bringing PAL-NFC to any Android devices or PC-linked USB NFC Reader.

| Specifications           |                    |
|--------------------------|--------------------|
| Model                    | PAL-1              |
| Cat.No.                  | 3810               |
| Range                    | Brix 0.0 to 53.0 % |
| Accuracy                 | ±0.2 %             |
| Temperature compensation | 10 to 100 ° C      |

Options

- MAGIC™ (for PAL) : RE-39411
- PAL-CASE : RE-39409
- PAL Silicone Cover : RE-39413
- STRAP : RE-39410

Send an inquiry

Quantity

Request Quotation

Digital Hand-held "Pocket"  
Refractometer PAL-1



Digital Hand-held "Pocket"  
Refractometer PAL-α



Digital Hand-held "Pocket"  
Refractometer PAL-H



Digital Hand-held "Pocket"  
Refractometer PAL-S



Digital Hand-held "Pocket"  
Refractometer PAL-BX/RI



Digital Hand-held "Pocket"  
Refractometer PAL-RI



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Quantity

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Digital Hand-held "Pocket"  
Refractometer PAL-2



Digital Hand-held "Pocket"  
Refractometer PAL-LOOP



Digital Hand-held "Pocket"

- SUPER EXTRACTOR : RE-29401
- 10% Sucrose (±0.03%) : RE-110010
- 20% Sucrose (±0.03%) : RE-110020
- 30% Sucrose (±0.03%) : RE-110030
- 40% Sucrose (±0.04%) : RE-110040
- 50% Sucrose (±0.05%) : RE-110050
- \* Calibration Certificate : Contact an ATAGO representative for details.

Patent for Invention Registration No. ZL200310103015.2 (China)

Patent for Design Registration No. ZL03303431.1 (China), 089244 (Taiwan)

Patent Granted in countries around the world.

Released on ATAGO's 65th Anniversary, the PAL-α is a special model with a wide brix range (0-85%) offered at a very reasonable price. PAL-α is useful for measuring most kinds of samples as well as samples that are in the cooking process. Designed with a water resistant feature, the PAL-α can be washed under running water. PAL-α is equipped with the same great features as the other PAL units.

| Specifications           |               |
|--------------------------|---------------|
| Model                    | PAL-α         |
| Cat.No.                  | 3840          |
| Range                    | 0.0 to 85.0 % |
| Accuracy                 | ±0.2 %        |
| Temperature compensation | 10 to 100 ° C |

- MAGIC™ (for PAL) : RE-39411
- PAL-CASE : RE-39409
- PAL Silicone Cover : RE-39413
- STRAP : RE-39410
- 10% Sucrose (±0.03%) : RE-110010
- 20% Sucrose (±0.03%) : RE-110020
- 30% Sucrose (±0.03%) : RE-110030
- 40% Sucrose (±0.04%) : RE-110040
- 50% Sucrose (±0.05%) : RE-110050
- 60% Sucrose (±0.05%) : RE-110060
- \* Calibration Certificate : Contact an ATAGO representative for details.

Patent for Invention Registration No. ZL200310103015.2 (China)

Refractometer PAL-Pâtissier



Honey Refractometer PAL-22S



Salinity Refractometer PAL-03S



Ramen Soup Refractometer PAL-96S



Soy Milk Refractometer PAL-



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Quantity 

Request Quotation

27S



Condiment Refractometer PAL-98S



Cutting Oil Refractometer PAL-102S



"Pocket" Refractometer PAL-Urea



Hydrogen Peroxide Refractometer PAL-39S



"Pocket" Urine Specific Gravity Refractometer PAL-10S



Patent for Design Registration No. ZL03303431.1 (China), 089244 (Taiwan)

Patent Granted in countries around the world.

Mode H™ Technology measure high temperature sample in 2 seconds

Samples with high temperature such as ramen soup, tare sauce for beef bowl, syrup, jam, soy milk etc. had to wait 15 to 20 seconds for measurement.The PAL-H is a high temperature sample, and it has Mode H that can perform stable measurements at a high speed of 2 seconds. "

| Specifications           |                     |
|--------------------------|---------------------|
| Model                    | PAL-H               |
| Cat.No.                  | 3870                |
| Range                    | Brix : 0.0 to 93.0% |
| Accuracy                 | ±0.5%               |
| Temperature compensation | 10 to 100°C         |

| Options                                                                                                                                                                                                                                                                                                                                                                                                                                        |  |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| <div><div>· MAGIC TM (for PAL MIM) : RE-39446</div><div>· STRAP : RE-39410</div><div>· PAL-CASE : RE-39409</div><div>· PAL Silicone Cover : RE-39413</div><div>· 10% Sucrose (±0.03%) : RE-110010</div><div>· 20% Sucrose (±0.03%) : RE-110020</div><div>· 30% Sucrose (±0.03%) : RE-110030</div><div>· 40% Sucrose (±0.04%) : RE-110040</div><div>· 50% Sucrose (±0.05%) : RE-110050</div><div>· 60% Sucrose (±0.05%) : RE-110060</div></div> |  |

Improved Repeatability with Mode S™ Technology.

Mode S™ is the solution to fluctuating measurement values.Ideal for fatty and/or dark samples, such as dairy products.

| Specifications |                      |
|----------------|----------------------|
| Model          | PAL-S                |
| Cat.No.        | 3860                 |
| Range          | Brix : 0.0 to 93.0 % |
| Accuracy       | ±0.2 %               |
| Temperature    |                      |

"Pocket" Ethylene Glycol Refractometer PAL-91S



Enlargement

Send an inquiry

Quantity

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- Industrial Wash Solutions Refractometer PAL-Cleaner

Sodium Hydroxide Refractometer PAL-40S

Soil Moisture Meter PAL-Soil
- 

Enlargement

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Quantity

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|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |              |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|
| compensation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 10 to 100° C |
| Options                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |              |
| <div><div>· MAGIC™ (for PAL) : RE-39411</div><div>· PAL-CASE : RE-39409</div><div>· PAL Silicone Cover : RE-39413</div><div>· SUPER EXTRACTOR : RE-29401</div><div>· STRAP : RE-39410</div><div>· 10% Sucrose (±0.03%) : RE-110010</div><div>· 20% Sucrose (±0.03%) : RE-110020</div><div>· 30% Sucrose (±0.03%) : RE-110030</div><div>· 40% Sucrose (±0.04%) : RE-110040</div><div>· 50% Sucrose (±0.05%) : RE-110050</div><div>· 60% Sucrose (±0.05%) : RE-110060</div><div>* Calibration Certificate : Contact an ATAGO representative for details.</div></div> |              |

Patent for Invention Registration No. ZL200310103015.2 (China)

Patent for Design Registration No. ZL03303431.1 (China), 089244 (Taiwan)

Patent Granted in countries around the world.

PAL-BX/RI has dual scales of Brix full range : Brix 0.0 to 93.0%, high measurement accuracy : Brix ±0.1% and Refractive Index (resolution 0.0001). RI and measurement temperature will continuously scroll across the display. The PAL-BX/RI works perfectly for measuring almost any sample.

|                          |                                                                                        |
|--------------------------|----------------------------------------------------------------------------------------|
| Specifications           |                                                                                        |
| Model                    | PAL-BX/RI                                                                              |
| Cat.No.                  | 3852                                                                                   |
| Scale                    | Brix<br>Refractive Index                                                               |
| Range                    | Brix : 0.0 to 93.0 %<br>Refractive Index :1.3306 to 1.5284<br>Temperature : 5 to 45° C |
| Accuracy                 | Brix : ±0.1%<br>Refractive Index : ±0.0003    (water at 20° C)                         |
| Temperature compensation | 10 to 100° C (Brix only)                                                               |

|                                                                                  |  |
|----------------------------------------------------------------------------------|--|
| Options                                                                          |  |
| <div><div>· MAGIC™ (for PAL) : RE-39411</div><div>· STRAP : RE-39410</div></div> |  |





Send an inquiry

Quantity

Request Quotation

- PAL-CASE : RE-39409
- PAL Silicone Cover : RE-39413
- 10% Sucrose (±0.03%) : RE-110010
- 20% Sucrose (±0.03%) : RE-110020
- 30% Sucrose (±0.03%) : RE-110030
- 40% Sucrose (±0.04%) : RE-110040
- 50% Sucrose (±0.05%) : RE-110050
- 60% Sucrose (±0.05%) : RE-110060
- \* Calibration Certificate : Contact an ATAGO representative for details.

Patent for Invention Registration No. ZL200310103015.2 (China)

Patent for Design Registration No. ZL03303431.1 (China), 089244 (Taiwan)

Patent Granted in countries around the world.

The long-awaited "Pocket" digital and compact sized PAL-RI was released. When the start key is pressed after placing some droplets of sample on the prism, the Refractive Index (resolution 0.0001) and temperature °C of the measurement will be displayed continuously.

| Specifications          |                                                             |
|-------------------------|-------------------------------------------------------------|
| Model                   | PAL-RI                                                      |
| Cat.No.                 | 3850                                                        |
| Scale                   | Refractive Index                                            |
| Range                   | Refractive Index:1.3306 to 1.5284<br>Temperature 5 to 45° C |
| Accuracy                | Refractive Index:±0.0003<br>(water at 20° C)                |
| Measurement Temperature | 5 to 45° C                                                  |

| Options                                                                  |  |
|--------------------------------------------------------------------------|--|
| • MAGIC™ (for PAL) : RE-39411                                            |  |
| • PAL-CASE : RE-39409                                                    |  |
| • PAL Silicone Cover : RE-39413                                          |  |
| • STRAP : RE-39410                                                       |  |
| * Calibration Certificate : Contact an ATAGO representative for details. |  |

Patent for Invention Registration No. ZL200310103015.2 (China)

Patent for Design Registration No. ZL03303431.1 (China), 089244 (Taiwan)

Patent Granted in countries around the world.



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Quantity

Since the measurement range of PAL-2 is Brix 45.0 - 93.0%, it can measure various high concentration samples such as jam, marmalade, jelly, honey and concentrated juice. The International Protection class of PAL-2 is IP65, so it can clean thick samples under running water. If you measure boiling jam or marmalade, we recommend [PAL-H](#)

| Specifications           |                       |
|--------------------------|-----------------------|
| Model                    | PAL-2                 |
| Cat.No.                  | 3820                  |
| Range                    | Brix : 45.0 to 93.0 % |
| Accuracy                 | ±0.2 %                |
| Temperature compensation | 10 to 100° C          |

| Options                                                                                                                                                                                                                                                                                                                                              |  |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| <ul style="list-style-type: none"><li>· MAGIC™ (for PAL) : RE-39411</li><li>· STRAP : RE-39410</li><li>· PAL-CASE : RE-39409</li><li>· PAL Silicone Cover : RE-39413</li><li>· 50% Sucrose (±0.05%) : RE-110050</li><li>· 60% Sucrose (±0.05%) : RE-110060</li></ul> <p>* Calibration Certificate : Contact an ATAGO representative for details.</p> |  |

Patent for Invention Registration No. ZL200310103015.2 (China)  
Patent for Design Registration No. ZL03303431.1 (China), 089244 (Taiwan)  
Patent Granted in countries around the world.

Released on ATAGO's 70th Anniversary, the PAL-LOOP is a special model with new Continuous Measurement feature to give you extra method tailored to meet your needs - select either the new continuous and conventional single measurement mode. Since the measurement range of PAL-LOOP is Brix 0.0 - 85.0%, it can be used to measure almost any samples.

| Specifications   |                                                    |
|------------------|----------------------------------------------------|
| Model            | PAL-LOOP                                           |
| Cat.No.          | 3842                                               |
| Measurement mode | 1. Single measurement<br>2. Continuous measurement |
| Range            | Brix : 0.0 to 85.0 %                               |
| Accuracy         | ±0.2 %                                             |
|                  |                                                    |



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|                          |               |
|--------------------------|---------------|
| Temperature compensation | 10 to 100 ° C |
|--------------------------|---------------|

Options

- MAGIC™ (for PAL) : RE-39411
- PAL-CASE : RE-39409
- PAL Silicone Cover : RE-39413
- STRAP : RE-39410
- 10% Sucrose (±0.03%) : RE-110010
- 20% Sucrose (±0.03%) : RE-110020
- 30% Sucrose (±0.03%) : RE-110030
- 40% Sucrose (±0.04%) : RE-110040
- 50% Sucrose (±0.05%) : RE-110050
- 60% Sucrose (±0.05%) : RE-110060

\* Calibration Certificate : Contact an ATAGO representative for details.

Patent for Invention Registration No. ZL200310103015.2 (China)

Patent for Design Registration No. ZL03303431.1 (China), 089244 (Taiwan)

Patent Granted in countries around the world.

NEW PAL Series, PAL-Pâtissier debut for pâtissiers. PAL-Pâtissier has dual scale of Brix and Baume, this is ideal refractometer for cooking sweets. Wide range of 0.0-85.0 Brix can be measured.

| Specifications           |                                                |
|--------------------------|------------------------------------------------|
| Model                    | PAL-Pâtissier                                  |
| Cat.No.                  | 4508                                           |
| Scale                    | Brix<br>Sugar Baume                            |
| Range                    | Brix : 0.0 to 85.0 %<br>Sugar Baume : 0 to 45° |
| Accuracy                 | Brix : ±0.2 %<br>Sugar Baume : ±1°             |
| Temperature compensation | 10 to 100°C                                    |

Options

- PAL-CASE : RE-39409
- STRAP : RE-39410
- 10% Sucrose (±0.03%) : RE-110010
- 20% Sucrose (±0.03%) : RE-110020



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- 30% Sucrose (±0.03%) : RE-110030
- 40% Sucrose (±0.04%) : RE-110040
- 50% Sucrose (±0.05%) : RE-110050
- 60% Sucrose (±0.05%) : RE-110060
- \* Calibration Certificate : Contact an ATAGO representative for details.
- PAL Silicone Cover : RE-39413

Patent for Invention Registration No. ZL200310103015.2 (China)

Patent for Design Registration No. ZL03303431.1 (China), 089244 (Taiwan)

Patent Granted in countries around the world.

The "Pocket" Honey Refractometer, PAL-22S can measure the % water content of honey easily and displays readings digitally. Comfortable, easy to use, light & compact. Measurements can be taken anywhere.

| Specifications           |                                 |
|--------------------------|---------------------------------|
| Model                    | PAL-22S                         |
| Cat.No.                  | 4422                            |
| Scale                    | Honey moisture                  |
| Range                    | Honey moisture : 12.0 to 30.0 % |
| Accuracy                 | ±0.2 %                          |
| Temperature compensation | 10 to 40° C                     |

| Options                         |  |
|---------------------------------|--|
| • PAL-CASE : RE-39409           |  |
| • PAL Silicone Cover : RE-39413 |  |
| • STRAP : RE-39410              |  |

Patent for Invention Registration No. ZL200310103015.2 (China)

Patent for Design Registration No. ZL03303431.1 (China), 089244 (Taiwan)

Patent Granted in countries around the world.

PAL-03S is suitable for measurement of salt water(g/100g).This model is also used as the important management tool of the spraying the snow-melting agent on the road. For the model with g/100ml, please choose [PAL-106S](#). We also have [Specific Gravity model](#) and [Baume model](#).

| Specifications |         |
|----------------|---------|
| Model          | PAL-03S |
|                |         |



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|                          |                                |
|--------------------------|--------------------------------|
| Cat.No.                  | 4403                           |
| Scale                    | Sodium chloride (g/100g)       |
| Range                    | Sodium chloride : 0.0 to 28.0% |
| Accuracy                 | ±0.2%                          |
| Temperature compensation | 10 to 40° C                    |

Options

- PAL-CASE : RE-39409
- PAL Silicone Cover : RE-39413
- STRAP : RE-39410

Patent for Invention Registration No. ZL200310103015.2 (China)

Patent for Design Registration No. ZL03303431.1 (China), 089244 (Taiwan)

Patent Granted in countries around the world.

This is the essential item in creasing your Ramen.This model can measure not noly the concentration of Soup and Tare but also baume of kansui used during making the noodle. If you are interested in Meister set of refractometer and salt meter, pleas choose [Ramen Meister Set](#).

For user testimonials of Japanese famous ramen restaurants, click [here](#).

| Specifications           |                                                                |
|--------------------------|----------------------------------------------------------------|
| Model                    | PAL-96S                                                        |
| Cat.No.                  | 4496                                                           |
| Scale                    | Ramen noodle soup<br>Baume Kansui                              |
| Range                    | Ramen noodle soup : 0.0 to 53.0%<br>Baume Kansui : 0.0 to 9.9° |
| Accuracy                 | Chinese noodle soup : ±0.2%<br>Baume Kansui : ±0.3°            |
| Temperature compensation | 10 to 100° C                                                   |

Options

- PAL-CASE : RE-39409
- PAL Silicone Cover : RE-39413
- STRAP : RE-39410

Parts

- MAGIC™ (for PAL) : RE-39411

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Patent for Invention Registration No. ZL200310103015.2 (China)  
Patent for Design Registration No. ZL03303431.1 (China), 089244 (Taiwan)  
Patent Granted in countries around the world.

You can measure solid contents of soybeans in the soymilk by PAL-27S.It is extremely water resistant for easy clean up. Just run it under the faucet!

| Specifications           |                                           |
|--------------------------|-------------------------------------------|
| Model                    | PAL-27S                                   |
| Cat.No.                  | 4427                                      |
| Scale                    | Soybean solids                            |
| Range                    | Concentration of Soy Milk : 0.0 to 20.0 % |
| Accuracy                 | ±0.2 %                                    |
| Temperature compensation | 10 to 100° C                              |

| Options                         |  |
|---------------------------------|--|
| · PAL-CASE : RE-39409           |  |
| · STRAP : RE-39410              |  |
| · PAL Silicone Cover : RE-39413 |  |

Patent for Invention Registration No. ZL200310103015.2 (China)  
Patent for Design Registration No. ZL03303431.1 (China), 089244 (Taiwan)  
Patent Granted in countries around the world.

Digital Hand-held "Pocket" Condiment Meter PAL-98S is ideal for measuring the concentration of various condiments. Use it to measure soy sauce, ketchup, marinades, curry and many other sauces. Finding the relationship between the actual taste and the measurement value using the PAL-98S will help any chef ensure the best taste every time.

| Specifications           |                                         |
|--------------------------|-----------------------------------------|
| Model                    | PAL-98S                                 |
| Cat.No.                  | 4498                                    |
| Range                    | Condiment Concentration : 0.0 to 70.0 % |
| Accuracy                 | ±0.2 %                                  |
| Temperature compensation | 10 to 100° C                            |



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Options

- PAL-CASE : RE-39409
- PAL Silicone Cover : RE-39413
- STRAP : RE-39410

Patent for Invention Registration No. ZL200310103015.2 (China)

Patent for Design Registration No. ZL03303431.1 (China), 089244 (Taiwan)

Patent Granted in countries around the world.

This is most suitable for the measurement of the percent dilution and controlling the percent concentration of hydraulic oil and cleaning liquid. Cutting oil, molding lubricant and rust resistance liquid are also well within the measurement range of the PAL-102S. With a water resistant design, the PAL-102S can also float in water which will help to prevent unforeseen accidents. Quick and easy measurements can be taken with the PAL-102S anywhere on your factory floor.

Specifications

|                          |                            |
|--------------------------|----------------------------|
| Model                    | PAL-102S                   |
| Cat.No.                  | 4502                       |
| Range                    | Cutting Oil : 0.0 to 70.0% |
| Accuracy                 | ±0.2%                      |
| Temperature compensation | 10 to 100° C               |

Options

- PAL-CASE : RE-39409
- PAL Silicone Cover : RE-39413
- STRAP : RE-39410

Patent for Invention Registration No. ZL200310103015.2 (China)

Patent for Design Registration No. ZL03303431.1 (China), 089244 (Taiwan)

Patent Granted in countries around the world.

The PAL-Urea is specifically designed to measure the Urea concentration of Diesel Exhaust Fluid (DEF), also known as AdBlue\* in Europe. Already proven in Europe as the only reliable, go-to instrument for easy and accurate checks, the PAL-Urea is now available in North America in time for new 2010 EPA regulations on diesel emissions. DEF needs to have a 32.5% Urea concentration in order to work effectively in SCR engines. Make sure that the DEF that comes out of your pump and into your tank is pure in quality and safe from potentially harmful additives by using the only digital hand-held refractometer already trusted by European



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consumers.\* AdBlue is a trademark of VDA.

| Specifications           |                      |
|--------------------------|----------------------|
| Model                    | PAL-Urea             |
| Cat.No.                  | 4518                 |
| Scale                    | Urea                 |
| Range                    | Urea : 0.0 to 55.0 % |
| Accuracy                 | ± 0.3 %              |
| Temperature compensation | 10 to 40° C          |

| Options                                                                                                                                                    |  |
|------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| <div><div>· MAGIC™ (for PAL) : RE-39411</div><div>· PAL-CASE : RE-39409</div><div>· PAL Silicone Cover : RE-39413</div><div>· STRAP : RE-39410</div></div> |  |

Patent for Invention Registration No. ZL200310103015.2 (China)

Patent for Design Registration No. ZL03303431.1 (China), 089244 (Taiwan)

Patent Granted in countries around the world.

This is ideal to measure Hydrogen peroxide concentration commonly used as a disinfectant.

| Specifications           |                                  |
|--------------------------|----------------------------------|
| Model                    | PAL-39S                          |
| Cat.No.                  | 4439                             |
| Scale                    | Hydrogen peroxide (g/100g)       |
| Range                    | Hydrogen peroxide : 0.0 to 50.0% |
| Resolution               | 0.2%                             |
| Accuracy                 | ±0.6%                            |
| Temperature compensation | 10 to 35° C                      |

| Options                                                                                                            |  |
|--------------------------------------------------------------------------------------------------------------------|--|
| <div><div>· PAL-CASE : RE-39409</div><div>· PAL Silicone Cover : RE-39413</div><div>· STRAP : RE-39410</div></div> |  |

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Patent for Invention Registration No. ZL200310103015.2 (China)

Patent for Design Registration No. ZL03303431.1 (China), 089244 (Taiwan)

Patent Granted in countries around the world.

The PAL-10S is a digital hand-held compact refractometer to measure urine S.G. To operate it, simply place a drop of urine on the prism top and press the "Start"key. Then, the urine S.G. value will be displayed on the LCD instantly.

| Specifications           |                               |
|--------------------------|-------------------------------|
| Model                    | PAL-10S                       |
| Cat.No.                  | 4410                          |
| Scale                    | Urine (S.G.)                  |
| Range                    | Urine S.G. : 1.0000 to 1.0600 |
| Resolution               | Urine S.G. : 0.0001           |
| Accuracy                 | Urine S.G. : ±0.001           |
| Temperature compensation | 10 to 35°C                    |

| Options                                                                  |  |
|--------------------------------------------------------------------------|--|
| · PAL-CASE : RE-39409                                                    |  |
| · STRAP : RE-39410                                                       |  |
| * Calibration Certificate : Contact an ATAGO representative for details. |  |

Patent for Design Registration No. ZL200310103015.2 (China)

Patent for Invention Registration No. ZL03303431.1 (China), 089244 (Taiwan)

Patent Granted in countries around the world.

PAL-91S, easily measure the coolant in brine and other agents of Ethylene Glycol.Antifreezing solution (coolant) whose main ingredient is ethylene glycol is widely used as mixed in cooling water of car's radiator, as cooling medium for central air - conditioning system, freezer / refrigerator, cooling coil, cooling fixture etc. The higher the concentration is, the lower the temperature at which ethylene glycol is frozen is. Therefore, it is needed to adjust freezing temperature of antifreezing solution so that it dose not freeze under a specific operation temperature.For Proylene Gycol, please choose [PAL-88S](#).

| Specifications |                                               |
|----------------|-----------------------------------------------|
| Model          | PAL-91S                                       |
| Cat.No.        | 4491                                          |
| Scale          | Ethylene glycol<br>Freezing point of E.G(° C) |



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|                          |                                                        |
|--------------------------|--------------------------------------------------------|
|                          | Temperature                                            |
| Range                    | E.G:0.0 to 90.0 % (V/V)<br>Freezing point: 0 to -50° C |
| Accuracy                 | Ethylene glycol: ±0.4 %(V/V)Freezing point: ±1° C      |
| Temperature compensation | 10 to 40° C                                            |

Options

- PAL-CASE : RE-39409
- PAL Silicone Cover : RE-39413
- STRAP : RE-39410

Patent for Invention Registration No. ZL200310103015.2 (China)

Patent for Design Registration No. ZL03303431.1 (China), 089244 (Taiwan)

Patent Granted in countries around the world

PAL- cleaner is a model that can be measured with high resolution of decimal two digits of 0.01%.This is ideal for measuring low concentration of the solution, such as industrial cleaning fluid.

| Specifications           |                          |
|--------------------------|--------------------------|
| Model                    | PAL-Cleaner              |
| Cat.No.                  | 4536                     |
| Scale                    | Cleaner                  |
| Range                    | Cleaner : 0.00 to 25.00% |
| Accuracy                 | ±0.10%                   |
| Temperature compensation | 10 to 100° C             |

Options

- PAL-CASE : RE-39409
- PAL Silicone Cover : RE-39413
- STRAP : RE-39410

Patent for Invention Registration No. ZL200310103015.2 (China)

Patent for Design Registration No. ZL03303431.1 (China), 089244 (Taiwan)

Patent Granted in countries around the world.

PAL-40S is suitable to measure the concentration of Sodium hydroxide (g/100g)/water solution.



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| Specifications           |                           |
|--------------------------|---------------------------|
| Model                    | PAL-40S                   |
| Cat.No.                  | 4440                      |
| Scale                    | Sodium hydroxide (g/100g) |
| Range                    | 0.0 to 38.0%              |
| Accuracy                 | ±0.2%                     |
| Temperature compensation | 10 to 35° C               |

| Options                                                                                                                                      |  |
|----------------------------------------------------------------------------------------------------------------------------------------------|--|
| <ul style="list-style-type: none"> <li>· PAL-CASE : RE-39409</li> <li>· PAL Silicone Cover : RE-39413</li> <li>· STRAP : RE-39410</li> </ul> |  |

|                                                                          |
|--------------------------------------------------------------------------|
| Patent for Invention Registration No. ZL200310103015.2 (China)           |
| Patent for Design Registration No. ZL03303431.1 (China), 089244 (Taiwan) |
| Patent Granted in countries around the world.                            |

PAL-Soil has dual scales of Gravimetric soil moisture and Volumetric soil moisture.Save on time, labor, and material with PAL-Soil. A measurement only takes 10 minutes whether out in the fields or in the lab.In accordance with ISO 16586:2003 “Soil quality – Determination of soil water content as a volume fraction on the basis of known dry bulk density – Gravimetric.”

| Specifications           |                                                                                                                                    |
|--------------------------|------------------------------------------------------------------------------------------------------------------------------------|
| Model                    | PAL-Soil                                                                                                                           |
| Cat.No.                  | 4571                                                                                                                               |
| Range                    | Gravimetric soil moisture : 0 to 200%<br>Volumetric soil moisture : 0 to 100%                                                      |
| Accuracy                 | Gravimetric soil moisture:<br>±2% (0 to 40%)<br>±5% (41 to 100%)<br>Volumetric soil moisture:<br>±1% (0 to 60%)<br>±2%(61 to 100%) |
| Temperature compensation | 10 to 40° C                                                                                                                        |

| Options                                                                                                          |  |
|------------------------------------------------------------------------------------------------------------------|--|
| <ul style="list-style-type: none"> <li>· PAL-CASE : RE-39409</li> <li>· PAL Silicone Cover : RE-39413</li> </ul> |  |



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- STRAP : RE-39410
- Digital scale : RE-39450

Patent for Invention Registration No. ZL200310103015.2 (China)

Patent for Design Registration No. ZL03303431.1 (China), 089244 (Taiwan)

Patent Granted in countries around the world.

PAL-Special scales

Refractive Index

(Medical / Cosmetics / Perfume / Chemical)

| Cat.No. | Model Name                                                              | Model No. | Scale                    | Range                                                    | Accuracy                                                            |
|---------|-------------------------------------------------------------------------|-----------|--------------------------|----------------------------------------------------------|---------------------------------------------------------------------|
| 3850    | Pocket Refractometer<br><a href="#">Click here for details &gt;&gt;</a> | PAL-RI    | Refractive Index         | Refractive Index 1.3306 to 1.5284                        | Refractive Index $\pm 0.0003$<br>(20°CIn water)                     |
| 3852    | Pocket Refractometer<br><a href="#">Click here for details &gt;&gt;</a> | PAL-BX/RI | Brix<br>Refractive Index | Brix 0.0 to 93.0%<br>Refractive Index : 1.3306 to 1.5284 | Brix $\pm 0.1\%$<br>Refractive Index $\pm 0.0003$<br>(20°CIn water) |

Sugar

(Processed Sugar / Food / Pharmaceutical / Beverage)

| Cat.No. | Model Name                                                                        | Model No. | Scale                              | Range                | Accuracy  |
|---------|-----------------------------------------------------------------------------------|-----------|------------------------------------|----------------------|-----------|
| 4412    | "Pocket" Dextran Refractometer<br><a href="#">Click here for details &gt;&gt;</a> | PAL-12S   | Dextran                            | 0.0 to 15.0 (g/100g) | $\pm 0.2$ |
| 4414    | "Pocket" Fructose Refractometer                                                   | PAL-14S   | Fructose                           | 0.0 to 50.0          | $\pm 0.2$ |
| 4415    | "Pocket" Glucose Refractometer                                                    | PAL-15S   | Glucose                            | 0.0 to 50.0          | $\pm 0.2$ |
| 4416    | "Pocket" High Fructose Corn Syrup (HFCS-42) Refractometer                         | PAL-16S   | High Fructose Corn Syrup (HFCS-42) | 0.0 to 85.0          | $\pm 0.2$ |
| 4417    | "Pocket" High Fructose Corn Syrup (HFCS-55) Refractometer                         | PAL-17S   | High Fructose Corn Syrup (HFCS-55) | 0.0 to 85.0          | $\pm 0.2$ |
| 4418    | "Pocket" Inverted sugar Refractometer                                             | PAL-18S   | Inverted sugar                     | 0.0 to 50.0          | $\pm 0.2$ |
| 4419    | "Pocket" Lactose Refractometer                                                    | PAL-19S   | Lactose                            | 0.0 to 20.0          | $\pm 0.2$ |
|         |                                                                                   |           |                                    |                      |           |

|      |                                |         |         |             |      |
|------|--------------------------------|---------|---------|-------------|------|
| 4420 | "Pocket" Maltose Refractometer | PAL-20S | Maltose | 0.0 to 25.0 | ±0.2 |
|------|--------------------------------|---------|---------|-------------|------|

Pâtissie [Pastry]

| Cat.No. | Model Name                                                                  | Model No.     | Scale               | Range                                     | Accuracy                      |
|---------|-----------------------------------------------------------------------------|---------------|---------------------|-------------------------------------------|-------------------------------|
| 4508    | "Pocket" Pâtissier Meter<br><a href="#">Click here for details &gt;&gt;</a> | PAL-Pâtissier | Brix<br>Sugar Baume | Brix 0.0 to 85.0%<br>Sugar Baume 0 to 45° | Brix ±0.2%<br>Sugar Baume ±1° |

Honey

| Cat.No. | Model Name                                                                      | Model No. | Scale             | Range              | Accuracy |
|---------|---------------------------------------------------------------------------------|-----------|-------------------|--------------------|----------|
| 4422    | "Pocket" Honey Refractometer<br><a href="#">Click here for details &gt;&gt;</a> | PAL-22S   | Honey<br>moisture | 12.0 to 30.0%      | ±0.2%    |
| 3820    | "Pocket" Refractometer<br><a href="#">Click here for details &gt;&gt;</a>       | PAL-2     | Brix              | Brix 45.0 to 93.0% | ±0.2%    |

Coffee (Beverage)

| Cat.No. | Model Name                                                                       | Model No.           | Scale      | Range                                     | Accuracy                 |
|---------|----------------------------------------------------------------------------------|---------------------|------------|-------------------------------------------|--------------------------|
| 4523    | Pocket Refractometer<br><a href="#">Click here for details &gt;&gt;</a>          | PAL-COFFEE          | Brix       | Brix 0.00 to 25.00%                       | Brix ±0.2%               |
| 4532    | Pocket Refractometer (TDS)<br><a href="#">Click here for details &gt;&gt;</a>    | PAL-COFFEE (TDS)    | TDS        | TDS 0.00 to 22.00%                        | TDS ±0.15%               |
| 4533    | Pocket Refractometer (BX/TDS)<br><a href="#">Click here for details &gt;&gt;</a> | PAL-COFFEE (BX/TDS) | Brix & TDS | Brix 0.00 to 25.00%<br>TDS 0.00 to 22.00% | Brix ±0.2%<br>TDS ±0.15% |

Tea (Beverage)

| Cat.No. | Model Name                                                                        | Model No. | Scale | Range             | Accuracy    |
|---------|-----------------------------------------------------------------------------------|-----------|-------|-------------------|-------------|
| 4535    | Pocket Tea Concentration Meter<br><a href="#">Click here for details &gt;&gt;</a> | PAL-Tea   | Tea   | Brix 0.0 to 25.0% | Brix ±0.10% |

Milk (Beverage)

| Cat.No. | Model Name                                                                     | Model No. | Scale                  | Range        | Accuracy |
|---------|--------------------------------------------------------------------------------|-----------|------------------------|--------------|----------|
| 3807    | "Pocket" Milk Refractometer<br><a href="#">Click here for details &gt;&gt;</a> | PAL-MILK  | Non-Fat Milk<br>Solids | 0.0 to 23.0% | ±0.2%    |

Soy Milk•Nigari

(Tofu / Beverage / Food etc.)

| Cat.No. | Model Name                    | Model No. | Scale   | Range | Accuracy |
|---------|-------------------------------|-----------|---------|-------|----------|
|         | Pocket Soy Milk Refractometer |           | Soybean |       |          |



|      |                                                                                                                         |         |                       |                       |       |
|------|-------------------------------------------------------------------------------------------------------------------------|---------|-----------------------|-----------------------|-------|
| 4427 | <a href="#">Click here for details &gt;&gt;</a>                                                                         | PAL-27S | solids                | 0.0 to 20.0%          | ±0.2% |
| 4443 | "Pocket" Magnesium chloride /<br>Snow-melting agent<br>Refractometer<br><a href="#">Click here for details &gt;&gt;</a> | PAL-43S | Magnesium<br>chloride | 0.0 to 30.0% (g/100g) | ±0.2% |

Ramen noodle soup(Ramen store / Noodles)

| Cat.No. | Model Name                                                                                       | Model No.                         | Scale                                         | Range                                                                            | Accuracy                                                                                                                           |
|---------|--------------------------------------------------------------------------------------------------|-----------------------------------|-----------------------------------------------|----------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------|
| 4496    | "Pocket" Chinese noodle soup<br>Refractometer<br><a href="#">Click here for details &gt;&gt;</a> | PAL-96S                           | Ramen<br>noodle soup<br>Baume Kansui          | Ramen noodle soup<br>0.0 to 53.0%<br>Baume Kansui<br>0.0 to 9.9°                 | Ramen noodle soup<br>±0.2%<br>Baume Kansui<br>±0.2°                                                                                |
| 4003    | Ramen Meister Set<br><a href="#">Click here for details &gt;&gt;</a>                             | PAL-<br>Ramen<br>PAL-Easy<br>SALT | Ramen<br>noodle soup<br>Salt<br>concentration | Ramen noodle soup<br>0.0 to 53.0%<br>Salt concentration<br>0.0 to 10.0° (g/100g) | Ramen noodle soup<br>±0.2%<br>Salt concentration<br>Display value ±0.05%<br>(0.00-0.99%)<br>Relative precision ±5%<br>(1.00-10.0%) |

Udon / Soba

| Cat.No. | Model Name                                                           | Model No.                     | Scale                               | Range                                                                     | Accuracy                                                                                                                                |
|---------|----------------------------------------------------------------------|-------------------------------|-------------------------------------|---------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------|
| 4001    | Dashi Meister Set<br><a href="#">Click here for details &gt;&gt;</a> | PAL-Easy<br>Salt<br>PAL-Dashi | soup stock<br>Salt<br>concentration | soup stock<br>0.0 to 53.0%<br>Salt concentration<br>0.0 to 10.0° (g/100g) | Salt concentration<br>hyou±0.2%<br>Salt concentration<br>Display value ±0.05%<br>(0.00-0.99%)<br>Relative precision ±5%<br>(1.00-10.0%) |

Condiment

(Soup / Soy Sauce / Sauce / Tare)

| Cat.No. | Model Name                                                                  | Model No. | Scale                      | Range        | Accuracy |
|---------|-----------------------------------------------------------------------------|-----------|----------------------------|--------------|----------|
| 4498    | "Pocket" Condiment Meter<br><a href="#">Click here for details &gt;&gt;</a> | PAL-98S   | Condiment<br>Concentration | 0.0 to 70.0% | ±0.2%    |

Brine

(Seafood / Pickles / Side dish / Noodles / Refrigeration apparatus)

| Cat.No. | Model Name | Model No. | Scale | Range | Accuracy             |
|---------|------------|-----------|-------|-------|----------------------|
|         |            |           | Salt  |       | Display value ±0.05% |

|      |                                                                                                         |                                |                                             |                                            |                                                                                                       |
|------|---------------------------------------------------------------------------------------------------------|--------------------------------|---------------------------------------------|--------------------------------------------|-------------------------------------------------------------------------------------------------------|
| 4250 | "Pocket" SALT METER<br><a href="#">Click here for details &gt;&gt;</a>                                  | <a href="#">PAL-SALT</a>       | concentration<br>(Conductivity method)      | 0.0 to 10.0% (g/100g)                      | (0.00 to 0.99%)<br>Relative precision ±5%<br>(1.00 to 10.0%)                                          |
| 4251 | "Pocket" SALT METER PAL-SALT Mohr<br><a href="#">Click here for details &gt;&gt;</a>                    | <a href="#">PAL-SALT Mohr</a>  | Salt concentration<br>(Conductivity method) | 0.0 to 10.0%(g/100g)                       | Display value ±0.05%<br>(0.00 to 0.99%)<br>Relative precision ±5%<br>(1.00 to 10.0%)                  |
| 4222 | "Pocket" Salt-meter PAL-SALT PROBE<br><a href="#">Click here for details &gt;&gt;</a>                   | <a href="#">PAL-SALT PROBE</a> | Salt concentration<br>(Conductivity method) | Absolute precision<br>0.0 to 7.0% (g/100g) | 0.00 to 2.0% ±0.1%<br>Relative precision 2.1 to 5.0%<br>±5%<br>Relative precision 5.1 to 7.0%<br>±10% |
| 4101 | "Pocket" Salt-meter<br><a href="#">Click here for details &gt;&gt;</a>                                  | <a href="#">PAL-Easy SALT</a>  | concentration                               | 0.0 to 10.0° (g/100g)                      | Display value ±0.05%<br>(0.00-0.99%)<br>Relative precision ±5%<br>(1.00-10.0%)                        |
| 4403 | "Pocket" Salinity / Snow-melting agent Refractometer<br><a href="#">Click here for details &gt;&gt;</a> | <a href="#">PAL-03S</a>        | Sodium chloride                             | 0.0 to 28.0% (g/100g)                      | ±0.2% (g/100g)                                                                                        |
| 4506 | "Pocket" Sodium Chloride Meter<br><a href="#">Click here for details &gt;&gt;</a>                       | <a href="#">PAL-106S</a>       | Sodium Chloride                             | 0.0 to 33.0% (g/100mL)                     | ±0.2%                                                                                                 |
| 4404 | "Pocket" Sodium chloride (S.G.) Refractometer<br><a href="#">Click here for details &gt;&gt;</a>        | <a href="#">PAL-04S</a>        | Sodium chloride (S.G.)                      | 1.000 to 1.217                             | ±0.002                                                                                                |
| 4405 | "Pocket" Sodium chloride (Baume) Refractometer<br><a href="#">Click here for details &gt;&gt;</a>       | <a href="#">PAL-05S</a>        | Sodium chloride (Baume)°                    | 0.0 to 25.7°                               | ±0.2°                                                                                                 |
| 4221 | Dried Fish Salt meter<br><a href="#">Click here for details &gt;&gt;</a>                                | <a href="#">PAL-FM1</a>        | Salt                                        | 0.0 to 10.0%                               |                                                                                                       |

### Seawater

(Seafood / Refrigeration apparatus / Aquaculture / Fish restaurant)

| Cat.No. | Model Name                                                                                 | Model No.               | Scale            | Range              | Accuracy |
|---------|--------------------------------------------------------------------------------------------|-------------------------|------------------|--------------------|----------|
| 4406    | "Pocket" Salinity Refractometer<br><a href="#">Click here for details &gt;&gt;</a>         | <a href="#">PAL-06S</a> | Salinity         | Salinity 0 to 100‰ | ±2%      |
| 4407    | "Pocket" Sea water (S.G.) Refractometer<br><a href="#">Click here for details &gt;&gt;</a> | <a href="#">PAL-07S</a> | Sea water (S.G.) | 1.000 to 1.070     | ±0.002   |

|      |                                                                                             |               |                    |              |       |
|------|---------------------------------------------------------------------------------------------|---------------|--------------------|--------------|-------|
| 4408 | "Pocket" Sea water (Baume) Refractometer<br><a href="#">Click here for details &gt;&gt;</a> | PAL-08S       | Sea water (Baume)° | 0.0 to 10.0° | ±0.2° |
| 4121 | "Pocket" Seawater meter<br><a href="#">Click here for details &gt;&gt;</a>                  | PAL-Fish Tank | Seawater           | 0.0 to 45.0° | ± °   |

### Carp

| Cat.No. | Model Name                                                         | Model No.      | Scale    | Range                                 | Accuracy                                                                                                              |
|---------|--------------------------------------------------------------------|----------------|----------|---------------------------------------|-----------------------------------------------------------------------------------------------------------------------|
| 4020    | Koi Meister Set<br><a href="#">Click here for details &gt;&gt;</a> | PAL-SALT DPH-2 | Brine pH | Brine 0.00 to 10.0%<br>pH 0.0 to 14.0 | Brine<br>Display value ±0.05%<br>(0.00 to 0.99%)<br>Relative accuracy ±5%<br>(1.00 to 10.0%)<br>pH±0.1(pH2.0 to 12.0) |

### Food additive (Food / Beverage)

| Cat.No. | Model Name                                                                                    | Model No. | Scale               | Range       | Accuracy |
|---------|-----------------------------------------------------------------------------------------------|-----------|---------------------|-------------|----------|
| 4429    | "Pocket" Citric acid Refractometer<br><a href="#">Click here for details &gt;&gt;</a>         | PAL-29S   | Citric acid         | 0.0 to 10.0 | ±0.2     |
| 4430    | "Pocket" Acetic acid Refractometer<br><a href="#">Click here for details &gt;&gt;</a>         | PAL-30S   | Acetic acid         | 0.0 to 20.0 | ±0.4     |
| 4432    | "Pocket" Phosphoric acid Refractometer<br><a href="#">Click here for details &gt;&gt;</a>     | PAL-32S   | Phosphoric acid     | 0.0 to 20.0 | ±0.4     |
| 4464    | "Pocket" Sodium bicarbonate Refractometer<br><a href="#">Click here for details &gt;&gt;</a>  | PAL-64S   | Sodium bicarbonate  | 0.0 to 10.0 | ±0.3     |
| 4465    | "Pocket" Sodium tartrate Refractometer<br><a href="#">Click here for details &gt;&gt;</a>     | PAL-65S   | Sodium tartrate     | 0.0 to 25.0 | ±0.2     |
| 4470    | "Pocket" Potassium phosphate Refractometer<br><a href="#">Click here for details &gt;&gt;</a> | PAL-70S   | Potassium phosphate | 0.0 to 15.0 | ±0.3     |

### Cutting Oil

(Metal Processing oil / Quenching oil / Grinding oil / Rolling oil / White release agent / Hydraulic oil)

| Cat.No. | Model Name                 | Model No. | Scale       | Range       | Accuracy |
|---------|----------------------------|-----------|-------------|-------------|----------|
| 4502    | "Pocket" Cutting Oil Meter | PAL-102S  | Cutting Oil | 0.0 to 70.0 | ±0.2%    |

|  |                                                 |  |  |  |  |
|--|-------------------------------------------------|--|--|--|--|
|  | <a href="#">Click here for details &gt;&gt;</a> |  |  |  |  |
|--|-------------------------------------------------|--|--|--|--|

### Anti-Rust Agent

| Cat.No. | Model Name                                                                                          | Model No.    | Scale    | Range          | Accuracy |
|---------|-----------------------------------------------------------------------------------------------------|--------------|----------|----------------|----------|
| 4537    | "Pocket" Meter for Corrosion Inhibitor Solutions<br><a href="#">Click here for details &gt;&gt;</a> | PAL-Antirust | AntiRust | 0.00 to 25.00% | ±0.10%   |

### Release agent

| Cat.No. | Model Name                                                                              | Model No.         | Scale         | Range          | Accuracy |
|---------|-----------------------------------------------------------------------------------------|-------------------|---------------|----------------|----------|
| 4538    | "Pocket" Release Agent Refractometer<br><a href="#">Click here for details &gt;&gt;</a> | PAL-Release Agent | Release Agent | 0.00 to 25.00% | ±0.10%   |

### Cleaning solution

| Cat.No. | Model Name                                                                                                 | Model No.              | Scale   | Range          | Accuracy |
|---------|------------------------------------------------------------------------------------------------------------|------------------------|---------|----------------|----------|
| 4536    | "Pocket" Meter for Industrial Wash Solutions<br><a href="#">Click here for details &gt;&gt;</a>            | PAL-Cleaner            | Cleaner | 0.00 to 25.00% | ±0.10%   |
| 4558    | "Pocket" Hydrocarbon Cleaner Contamination Refactometer<br><a href="#">Click here for details &gt;&gt;</a> | PAL-Hydrocarbon Cleane | Contam. | 0.0 to 30.0%   | ±1.00%   |

### Spirit / Beer

| Cat.No. | Model Name                                                                                               | Model No.   | Scale         | Range                      | Accuracy |
|---------|----------------------------------------------------------------------------------------------------------|-------------|---------------|----------------------------|----------|
| 4540    | "Pocket" Ethyl alcohol refractometer(V/V) PAL-Whiskey<br><a href="#">Click here for details &gt;&gt;</a> | PAL-Whiskey | Ethyl alcohol | 0.0 to 53.0%<br>(mL/100mL) | ±1.0%    |
| 4541    | "Pocket" Ethyl alcohol refractometer(V/V) PAL-Vodka<br><a href="#">Click here for details &gt;&gt;</a>   | PAL-Vodka   | Ethyl alcohol | 0.0 to 53.0%<br>(mL/100mL) | ±1.0%    |
| 4542    | "Pocket" Ethyl alcohol refractometer(V/V) PAL-Tequila<br><a href="#">Click here for details &gt;&gt;</a> | PAL-Tequila | Ethyl alcohol | 0.0 to 53.0%<br>(mL/100mL) | ±1.0%    |
| 4543    | "Pocket" Ethyl alcohol refractometer(V/V) PAL-Shochu<br><a href="#">Click here for details &gt;&gt;</a>  | PAL-Shochu  | Ethyl alcohol | 0.0 to 53.0%<br>(mL/100mL) | ±1.0%    |
|         | "Pocket" Ethyl alcohol                                                                                   |             |               | 0.0 to 53.0%               |          |



|      |                                                                                                            |                                 |               |                            |         |
|------|------------------------------------------------------------------------------------------------------------|---------------------------------|---------------|----------------------------|---------|
| 4544 | refractometer(V/V) PAL-Gin<br><a href="#">Click here for details &gt;&gt;</a>                              | <a href="#">PAL-Gin</a>         | Ethyl alcohol | (mL/100mL)                 | ±1.0%   |
| 4545 | "Pocket" Ethyl alcohol<br>refractometer(V/V) PAL-Rum<br><a href="#">Click here for details &gt;&gt;</a>    | <a href="#">PAL-Rum</a>         | Ethyl alcohol | 0.0 to 53.0%<br>(mL/100mL) | ±1.0%   |
| 4546 | "Pocket" Ethyl alcohol<br>refractometer(V/V) PAL-Brandy<br><a href="#">Click here for details &gt;&gt;</a> | <a href="#">PAL-<br/>Brandy</a> | Ethyl alcohol | 0.0 to 53.0%<br>(mL/100mL) | ±1.0%   |
| 4590 | "Pocket" Refractometer<br><a href="#">Click here for details &gt;&gt;</a>                                  | <a href="#">PAL-Plato</a>       | Plato         | 0.0 to 30.0° P             | ±0.2° P |

## Wine

| Cat.No. | Model Name                                                                      | Model No.               | Scale                | Range                                       | Accuracy                       |
|---------|---------------------------------------------------------------------------------|-------------------------|----------------------|---------------------------------------------|--------------------------------|
| 4479    | "Pocket" Wine Refractometers<br><a href="#">Click here for details &gt;&gt;</a> | <a href="#">PAL-79S</a> | T.A. 1990            | 0.0 to 26.0%                                | ±0.2%                          |
| 4480    | "Pocket" Wine Refractometers<br><a href="#">Click here for details &gt;&gt;</a> | <a href="#">PAL-80S</a> | T.A. 1971            | 0.0 to 25.0%                                | ±0.2%                          |
| 4483    | "Pocket" Wine Refractometers<br><a href="#">Click here for details &gt;&gt;</a> | <a href="#">PAL-83S</a> | KMW (or<br>Bado)     | 0.0 to 40.0°                                | ±0.2°                          |
| 4484    | "Pocket" Wine Refractometers<br><a href="#">Click here for details &gt;&gt;</a> | <a href="#">PAL-84S</a> | Baume                | 0.0 to 21.0°                                | ±0.2°                          |
| 4486    | "Pocket" Wine Refractometers<br><a href="#">Click here for details &gt;&gt;</a> | <a href="#">PAL-86S</a> | Oe (GER)<br>Brix     | Oe (GER) 0 to 240°<br>Brix 0.0 to 53.0%     | Oe (GER) ±1°<br>Brix ±0.2%     |
| 4487    | "Pocket" Wine Refractometers<br><a href="#">Click here for details &gt;&gt;</a> | <a href="#">PAL-87S</a> | Oe (Oechsle)<br>Brix | Oe (Oechsle) 0 to 240°<br>Brix 0.0 to 53.0% | Oe (Oechsle) ±1°<br>Brix ±0.2% |

## Alcohol liquid (Chemical industry•Cleaning•Printing•Refrigeration apparatus)

| Cat.No. | Model Name                                                                                   | Model No.               | Scale                         | Range        | Accuracy |
|---------|----------------------------------------------------------------------------------------------|-------------------------|-------------------------------|--------------|----------|
| 4433    | "Pocket" Ethyl alcohol<br>Meter(mL/100mL)<br><a href="#">Click here for details &gt;&gt;</a> | <a href="#">PAL-33S</a> | Ethyl alcohol<br>(mL/100mL)   | 0.0 to 53.0% | ±1.0%    |
| 4434    | "Pocket" Ethyl alcohol<br>Meter(g/100g)<br><a href="#">Click here for details &gt;&gt;</a>   | <a href="#">PAL-34S</a> | Ethyl alcohol<br>(g/100g)     | 0.0 to 45.0  | ±1.0     |
| 4436    | "Pocket" Methyl alcohol<br>Refractometer                                                     | <a href="#">PAL-36S</a> | Methyl<br>alcohol<br>(g/100g) | 0 to 35      | ±2       |
|         |                                                                                              |                         |                               |              |          |

|      |                                                                                             |                          |                              |             |                                  |
|------|---------------------------------------------------------------------------------------------|--------------------------|------------------------------|-------------|----------------------------------|
| 4437 | "Pocket" Isopropyl alcohol Refractometer<br><a href="#">Click here for details &gt;&gt;</a> | <a href="#">PAL-37S</a>  | Isopropyl alcohol (g/100g)   | 0.0 to 60.0 | 0 to 30% ±0.6<br>40% to 60% ±1.6 |
| 4530 | "Pocket" Isopropyl alcohol Refractometer<br><a href="#">Click here for details &gt;&gt;</a> | <a href="#">PAL-131S</a> | Isopropyl alcohol (mL/100mL) | 0.0 to 20.0 | ±0.6                             |
| 4485 | "Pocket" Polyvinyl alcohol Refractometer<br><a href="#">Click here for details &gt;&gt;</a> | <a href="#">PAL-85S</a>  | Polyvinyl alcohol            | 0.0 to 20.0 | ±0.2                             |

### Reagents for pharmaceuticals

| Cat.No. | Model Name                                                                                            | Model No.               | Scale              | Range        | Accuracy |
|---------|-------------------------------------------------------------------------------------------------------|-------------------------|--------------------|--------------|----------|
| 4412    | "Pocket" Dextran Refractometer<br><a href="#">Click here for details &gt;&gt;</a>                     | <a href="#">PAL-12S</a> | Dextran(g/100g)    | 0.0 to 15.0  | ±0.2     |
| 4413    | "Pocket" Creatine Refractometer                                                                       | PAL-13S                 | Creatine(g/100g)   | 0.0 to 10.0  | ±0.2     |
| 4423    | "Pocket" Glycerin Low concentration Refractometer<br><a href="#">Click here for details &gt;&gt;</a>  | <a href="#">PAL-23S</a> | Glycerin           | 0.0 to 65.0  | ±0.4     |
| 4424    | "Pocket" Glycerin High concentration Refractometer<br><a href="#">Click here for details &gt;&gt;</a> | <a href="#">PAL-24S</a> | Glycerin           | 60.0 to 99.0 | ±0.4     |
| 4425    | "Pocket" Inulin Refractometer                                                                         | PAL-25S                 | Inulin             | 0.0 to 15.0  | ±0.2     |
| 4426    | "Pocket" Mannitol Refractometer                                                                       | PAL-26S                 | Mannitol           | 0.0 to 15.0  | ±0.3     |
| 4431    | "Pocket" Formic acid Refractometer                                                                    | PAL-31S                 | Formic acid        | 0.0 to 90.0  | ±1.0     |
| 4432    | "Pocket" Phosphoric acid Refractometer<br><a href="#">Click here for details &gt;&gt;</a>             | <a href="#">PAL-32S</a> | Phosphoric acid    | 0.0 to 20.0  | ±0.4     |
| 4451    | "Pocket" Sodium bromide Refractometer                                                                 | PAL-51S                 | Sodium bromide     | 0.0 to 30.0  | ±0.2     |
| 4455    | "Pocket" Magnesium sulfate Refractometer                                                              | PAL-55S                 | Magnesium sulfate  | 0.0 to 25.0  | ±0.2     |
| 4464    | "Pocket" Sodium bicarbonate Refractometer<br><a href="#">Click here for details &gt;&gt;</a>          | <a href="#">PAL-64S</a> | Sodium bicarbonate | 0.0 to 10.0  | ±0.3     |
| 4465    | "Pocket" Sodium tartrate Refractometer<br><a href="#">Click here for details &gt;&gt;</a>             | <a href="#">PAL-65S</a> | Sodium tartrate    | 0.0 to 25.0  | ±0.2     |

|      |                                                                                               |                         |                      |             |      |
|------|-----------------------------------------------------------------------------------------------|-------------------------|----------------------|-------------|------|
|      |                                                                                               |                         |                      |             |      |
| 4466 | "Pocket" Potassium oxalate Refractometer                                                      | PAL-66S                 | Potassium oxalate    | 0.0 to 10.0 | ±0.2 |
| 4468 | "Pocket" Potassium dichromate Refractometer                                                   | PAL-68S                 | Potassium dichromate | 0.0 to 15.0 | ±0.2 |
| 4470 | "Pocket" Potassium phosphate Refractometer<br><a href="#">Click here for details &gt;&gt;</a> | <a href="#">PAL-70S</a> | Potassium phosphate  | 0.0 to 15.0 | ±0.3 |
| 4472 | "Pocket" Sodium tungstate Refractometer                                                       | PAL-72S                 | Sodium tungstate     | 0.0 to 10.0 | ±0.4 |

### Clinical examination•Experiment

| Cat.No. | Model Name                                                                                               | Model No.                       | Scale                                                        | Range                                        | Accuracy |
|---------|----------------------------------------------------------------------------------------------------------|---------------------------------|--------------------------------------------------------------|----------------------------------------------|----------|
| 4410    | "Pocket" urine S. G. refractometer<br><a href="#">Click here for details &gt;&gt;</a>                    | <a href="#">PAL-10S</a>         | Urine (S.G.)                                                 | 1.000 to 1.060                               | ±0.001   |
| 4442    | "Pocket" Cesium chloride Refractometer                                                                   | PAL-42S                         | Cesium chloride                                              | 0.0 to 60.0                                  | ±0.4     |
| 4453    | "Pocket" Copper sulfate (Concentration) Refractometer<br><a href="#">Click here for details &gt;&gt;</a> | <a href="#">PAL-53S</a>         | Copper sulfate (Concentration)                               | 0.0 to 20.0                                  | ±0.2     |
| 4454    | "Pocket" Copper sulfate (S.G.) Refractometer<br><a href="#">Click here for details &gt;&gt;</a>          | <a href="#">PAL-54S</a>         | Copper sulfate (S.G.)                                        | 1.000 to 1.210                               | ±0.002   |
| 4401    | "Pocket" Serum protein Refractometer<br><a href="#">Click here for details &gt;&gt;</a>                  | <a href="#">PAL-11S</a>         | Serum protein scale                                          | 0.0 to 12.0 (g/100mL)                        | ±0.2     |
| 4529    | "Pocket" Dog&Cat Urine Specific gravity Refractometer<br><a href="#">Click here for details &gt;&gt;</a> | <a href="#">PAL-DOG&amp;CAT</a> | Urine Specific Gravity (Dog)<br>Urine Specific Gravity (Cat) | (Dog) 1.000 to 1.060<br>(Cat) 1.000 to 1.080 | ±0.001   |
| 4510    | "Pocket" Dogt Urine S. G. refractometer<br><a href="#">Click here for details &gt;&gt;</a>               | <a href="#">PAL-DOG</a>         | Urine Specific Gravity (Dog)                                 | 1.000 to 1.060                               | ±0.001   |
| 4511    | "Pocket" Cat Urine S. G. refractometer<br><a href="#">Click here for details &gt;&gt;</a>                | <a href="#">PAL-CAT</a>         | Urine Specific Gravity (Cat)                                 | 1.000 to 1.080                               | ±0.001   |
| 4512    | "Pocket" Rabbit Urine Specific Gravity Refractometer                                                     | <a href="#">PAL-RABBIT</a>      | Urine Specific                                               | 1.000 to 1.100                               | ±0.002   |

|      |                                                                                                  |                           |                  |   |   |
|------|--------------------------------------------------------------------------------------------------|---------------------------|------------------|---|---|
|      | <a href="#">Click here for details &gt;&gt;</a>                                                  |                           | Gravity (Rabbit) |   |   |
| 4565 | "Pocket" Urine Specific gravity Refractometer<br><a href="#">Click here for details &gt;&gt;</a> | ATAGO DEHYDRATION CHECKER | -                | - | - |

### Urea

| Cat.No. | Model Name                                                                | Model No. | Scale | Range        | Accuracy |
|---------|---------------------------------------------------------------------------|-----------|-------|--------------|----------|
| 4518    | "Pocket" Refractometer<br><a href="#">Click here for details &gt;&gt;</a> | PAL-Urea  | Urea  | 0.0 to 55.0% | ±0.3%    |

### Sterilization

| Cat.No. | Model Name                                                                                  | Model No. | Scale             | Range       | Accuracy |
|---------|---------------------------------------------------------------------------------------------|-----------|-------------------|-------------|----------|
| 4439    | "Pocket" Hydrogen peroxide Refractometer<br><a href="#">Click here for details &gt;&gt;</a> | PAL-39S   | Hydrogen peroxide | 0.0 to 50.0 | ±0.6     |

### Alkaline solution （Drink factory / Chemical industry）

| Cat.No. | Model Name                                                                                 | Model No. | Scale            | Range       | Accuracy |
|---------|--------------------------------------------------------------------------------------------|-----------|------------------|-------------|----------|
| 4440    | "Pocket" Sodium hydroxide Refractometer<br><a href="#">Click here for details &gt;&gt;</a> | PAL-40S   | Sodium hydroxide | 0.0 to 38.0 | ±0.2     |

### Snow-melting Agent (Management of roads, runways, parking lots)

| Cat.No. | Model Name                                                                                                        | Model No. | Scale                            | Range                                             | Accuracy                             |
|---------|-------------------------------------------------------------------------------------------------------------------|-----------|----------------------------------|---------------------------------------------------|--------------------------------------|
| 4393    | "Pocket" Refractometer<br><a href="#">Click here for details &gt;&gt;</a>                                         | PAL-03CS  | Sodium chloride + Freezing point | 0.0 to 28.0% (g/100g)<br>Freezing point 0 to -22℃ | ±0.2% (g/100g)<br>Freezing point ±1℃ |
| 4403    | "Pocket" Salinity / Snow-melting agent Refractometer<br><a href="#">Click here for details &gt;&gt;</a>           | PAL-03S   | Sodium chloride                  | 0.0 to 28.0% (g/100g)                             | ±0.2% （g/100g）                       |
| 4441    | "Pocket" Snow-melting agent Refractometer<br><a href="#">Click here for details &gt;&gt;</a>                      | PAL-41S   | Calcium chloride                 | 0.0 to 35.0% (g/100g)                             | ±0.2%                                |
| 4443    | "Pocket" Magnesium chloride / Snow-melting agent Refractometer<br><a href="#">Click here for details &gt;&gt;</a> | PAL-43S   | Magnesium chloride               | 0.0 to 30.0% (g/100g)                             | ±0.2%                                |



Coolant / Antifreeze / Heat refrigerant liquid / Cryoprotectant

(Car maintenance•Thermal refrigerant equipment - Building•Ice skating rink•Refrigeration apparatus)

| Cat.No. | Model Name                                                                                 | Model No. | Scale                                                    | Range                                           | Accuracy                           |
|---------|--------------------------------------------------------------------------------------------|-----------|----------------------------------------------------------|-------------------------------------------------|------------------------------------|
| 4488    | "Pocket" Propylene Glycol Refractometer<br><a href="#">Click here for details &gt;&gt;</a> | PAL-88S   | Concentration of Propylene Glycol (V/V) & Freezing point | 0.0 to 90.0% (V/V)<br>Freezing point 0 to -50°C | ±0.4% (V/V)<br>Freezing point ±1°C |
| 4491    | "Pocket" Ethylene Glycol refractometer<br><a href="#">Click here for details &gt;&gt;</a>  | PAL-91S   | Ethylene Glycol & Freezing point of E.G                  | 0.0 to 90.0% (V/V)<br>Freezing point 0 to -50°C | ±0.4% (V/V)<br>Freezing point ±1°C |

Synthetic leather / Textile

| Cat.No. | Model Name                                                                                   | Model No. | Scale              | Range       | Accuracy |
|---------|----------------------------------------------------------------------------------------------|-----------|--------------------|-------------|----------|
| 4438    | "Pocket" Dimethyl formamide Refractometer<br><a href="#">Click here for details &gt;&gt;</a> | PAL-38S   | Dimethyl formamide | 0.0 to 45.0 | ±0.4     |

Paste （Paper / Chemical industry）

| Cat.No. | Model Name                     | Model No. | Scale   | Range       | Accuracy |
|---------|--------------------------------|-----------|---------|-------------|----------|
| 4421    | "Pocket" Dextrin Refractometer | PAL-21S   | Dextrin | 0.0 to 30.0 | ±0.3     |

Chemical / Processing chemicals

| Cat.No. | Model Name                                                                                              | Model No. | Scale                         | Range        | Accuracy |
|---------|---------------------------------------------------------------------------------------------------------|-----------|-------------------------------|--------------|----------|
| 4423    | "Pocket" Glycerin (Low concentration) Refractometer<br><a href="#">Click here for details &gt;&gt;</a>  | PAL-23S   | Glycerin                      | 0.0 to 65.0  | ±0.4     |
| 4424    | "Pocket" Glycerin (High concentration) Refractometer<br><a href="#">Click here for details &gt;&gt;</a> | PAL-24S   | Glycerin PAL-2 correspondence | 60.0 to 99.0 | ±0.4     |
| 4430    | "Pocket" Acetic acid Refractometer<br><a href="#">Click here for details &gt;&gt;</a>                   | PAL-30S   | Acetic acid                   | 0.0 to 20.0  | ±0.4     |
| 4431    | "Pocket" Formic acid Refractometer                                                                      | PAL-31S   | Formic acid                   | 0.0 to 90.0  | ±1.0     |
| 4432    | "Pocket" Phosphoric acid Refractometer                                                                  | PAL-32S   | Phosphoric acid               | 0.0 to 20.0  | ±0.4     |

|      |                                                                                                          |                         |                                |                |        |
|------|----------------------------------------------------------------------------------------------------------|-------------------------|--------------------------------|----------------|--------|
|      | <a href="#">Click here for details &gt;&gt;</a>                                                          |                         |                                |                |        |
| 4444 | "Pocket" Lithium chloride Refractometer                                                                  | PAL-44S                 | Lithium chloride               | 0.0 to 20.0    | ±0.2   |
| 4445 | "Pocket" Barium chloride Refractometer                                                                   | PAL-45S                 | Barium chloride                | 0.0 to 25.0    | ±0.2   |
| 4446 | "Pocket" Cobalt chloride Refractometer                                                                   | PAL-46S                 | Cobalt chloride                | 0.0 to 15.0    | ±0.2   |
| 4447 | "Pocket" Ferric chloride Refractometer                                                                   | PAL-47S                 | Ferric chloride                | 0.0 to 15.0    | ±0.2   |
| 4448 | "Pocket" Strontium chloride Refractometer                                                                | PAL-48S                 | Strontium chloride             | 0.0 to 25.0    | ±0.2   |
| 4449 | "Pocket" Potassium chloride Refractometer                                                                | PAL-49S                 | Potassium chloride             | 0.0 to 30.0    | ±0.2   |
| 4450 | "Pocket" Potassium bromide Refractometer                                                                 | PAL-50S                 | Potassium bromide              | 0.0 to 35.0    | ±0.2   |
| 4451 | "Pocket" Sodium bromide Refractometer                                                                    | PAL-51S                 | Sodium bromide                 | 0.0 to 30.0    | ±0.2   |
| 4452 | "Pocket" Potassium iodide Refractometer                                                                  | PAL-52S                 | Potassium iodide               | 0.0 to 30.0    | ±0.2   |
| 4453 | "Pocket" Copper sulfate (Concentration) Refractometer<br><a href="#">Click here for details &gt;&gt;</a> | <a href="#">PAL-53S</a> | Copper sulfate (Concentration) | 0.0 to 20.0    | ±0.2   |
| 4454 | "Pocket" Copper sulfate (S.G.) Refractometer                                                             | PAL-54S                 | Copper sulfate (S.G.)          | 1.000 to 1.210 | ±0.002 |
| 4455 | "Pocket" Magnesium sulfate Refractometer                                                                 | PAL-55S                 | Magnesium sulfate              | 0.0 to 25.0    | ±0.2   |
| 4456 | "Pocket" Potassium sulfate Refractometer                                                                 | PAL-56S                 | Potassium sulfate              | 0.0 to 15.0    | ±0.3   |
| 4457 | "Pocket" Nickel sulfate Refractometer                                                                    | PAL-57S                 | Nickel sulfate                 | 0.0 to 10.0    | ±0.2   |
| 4458 | "Pocket" Sodium sulfate Refractomete                                                                     | PAL-58S                 | Sodium sulfate                 | 0.0 to 30.0    | ±0.2   |
| 4459 | "Pocket" Zinc sulfate Refractometer                                                                      | PAL-59S                 | Zinc sulfate                   | 0.0 to 20.0    | ±0.2   |
| 4460 | "Pocket" Silver nitrate Refractometer                                                                    | PAL-60S                 | Silver nitrate                 | 0.0 to 35.0    | ±0.3   |
|      |                                                                                                          |                         |                                |                |        |

|      |                                                                                               |                         |                      |             |      |
|------|-----------------------------------------------------------------------------------------------|-------------------------|----------------------|-------------|------|
| 4461 | "Pocket" Sodium nitrate Refractometer                                                         | PAL-61S                 | Sodium nitrate       | 0.0 to 35.0 | ±0.3 |
| 4462 | "Pocket" Potassium carbonate Refractometer                                                    | PAL-62S                 | Potassium carbonate  | 0.0 to 25.0 | ±0.2 |
| 4463 | "Pocket" Sodium carbonate Refractometer                                                       | PAL-63S                 | Sodium carbonate     | 0.0 to 15.0 | ±0.2 |
| 4464 | "Pocket" Sodium bicarbonate Refractometer<br><a href="#">Click here for details &gt;&gt;</a>  | <a href="#">PAL-64S</a> | Sodium bicarbonate   | 0.0 to 10.0 | ±0.3 |
| 4467 | "Pocket" Potassium chromate Refractometer                                                     | PAL-67S                 | Potassium chromate   | 0.0 to 20.0 | ±0.2 |
| 4468 | "Pocket" Potassium dichromate Refractometer                                                   | PAL-68S                 | Potassium dichromate | 0.0 to 15.0 | ±0.2 |
| 4469 | "Pocket" Sodium thiosulfate Refractometer                                                     | PAL-69S                 | Sodium thiosulfate   | 0.0 to 20.0 | ±0.2 |
| 4470 | "Pocket" Potassium phosphate Refractometer<br><a href="#">Click here for details &gt;&gt;</a> | <a href="#">PAL-70S</a> | Potassium phosphate  | 0.0 to 15.0 | ±0.3 |
| 4471 | "Pocket" Sodium molybdate Refractometer                                                       | PAL-71S                 | Sodium molybdate     | 0.0 to 10.0 | ±0.2 |
| 4472 | "Pocket" Sodium tungstate Refractometer                                                       | PAL-72S                 | Sodium tungstate     | 0.0 to 10.0 | ±0.4 |

## Moisture

| Cat.No. | Model Name                                                                         | Model No.                    | Scale                     | Range       | Accuracy |
|---------|------------------------------------------------------------------------------------|------------------------------|---------------------------|-------------|----------|
| 4573    | "Pocket" Moisture Refractometer<br><a href="#">Click here for details &gt;&gt;</a> | <a href="#">PAL-Moisture</a> | Moisture content (g/100g) | 7.0 to 100% | ±0.2%    |

## Dried Fruit

| Cat.No. | Model Name                                                                             | Model No.                                | Scale    | Range       | Accuracy |
|---------|----------------------------------------------------------------------------------------|------------------------------------------|----------|-------------|----------|
| 4574    | 'Pocket' Dried Fruit Moisture Meter<br><a href="#">Click here for details &gt;&gt;</a> | <a href="#">PAL-Dried Fruit Moisture</a> | Moisture | 7.0 to 100% | ±0.2%    |

## Colostrum

| Cat.No. | Model Name | Model No. | Scale | Range | Accuracy |
|---------|------------|-----------|-------|-------|----------|
|         |            |           |       |       |          |

|      |                                                                           |               |      |              |       |
|------|---------------------------------------------------------------------------|---------------|------|--------------|-------|
| 3805 | "Pocket" Refractometer<br><a href="#">Click here for details &gt;&gt;</a> | PAL-Colostrum | Brix | 0.0 to 53.0% | ±0.2% |
|------|---------------------------------------------------------------------------|---------------|------|--------------|-------|

### Printing

| Cat.No. | Model Name                                                                                  | Model No. | Scale                       | Range                          | Accuracy                                           |
|---------|---------------------------------------------------------------------------------------------|-----------|-----------------------------|--------------------------------|----------------------------------------------------|
| 4437    | "Pocket" Isopropyl alcohol Refractometer<br><a href="#">Click here for details &gt;&gt;</a> | PAL-37S   | Isopropyl alcohol (g/100g)  | Isopropyl alcohol 0.0 to 60.0% | Isopropyl alcohol ±0.6% upto 30% and 1.6% upto 60% |
| 4530    | "Pocket" Isopropyl alcohol Refractometer<br><a href="#">Click here for details &gt;&gt;</a> | PAL-131S  | Isopropyl alcohol (mL/100m) | Isopropyl alcohol 0.0 to 20.0% | Isopropyl alcohol ±0.6%                            |

### Soil

| Cat.No. | Model Name                                                                              | Model No. | Scale                                             | Range                                                                 | Accuracy                                                                                                       |
|---------|-----------------------------------------------------------------------------------------|-----------|---------------------------------------------------|-----------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------|
| 4571    | Gravimetric/Volumetric Soil Moisture<br><a href="#">Click here for details &gt;&gt;</a> | PAL-Soil  | Water content ratio<br>Deposited moisture content | Water content ratio 0 to 200%<br>Deposited moisture content 0 to 100% | Water content ratio ±2% (At a water content ratio of 41 to 100%)<br>±5% (At a water content ratio of 0 to 40%) |

## PAL Special scales [Product details]

### Digital Pocket Refractometer PAL-COFFEE



PAL-COFFEE(Brix scale), which [famous Baristas](#) are using for their important tools, has the high resolution of 0.01%.The subtle difference in the concentration of coffee and espresso can be measured.Stable readings are possible even with high-temperature, fresh brew due to the continuous measurement feature. For TDS scale, please choose [PAL-Coffee\(TDS\)](#). For Double scales of Brix and TDS, pleas choose [PAL-Coffee\(BX/TDS\)](#).

| Specifications |                       |
|----------------|-----------------------|
| Model          | PAL-COFFEE            |
| Cat.No.        | 4523                  |
| Scale          | Brix                  |
| Range          | Brix : 0.00 to 25.00% |
| Accuracy       | Brix : ±0.10%         |
|                |                       |




Enlargement


Send an inquiry

Quantity

Request Quotation

Digital Pocket



|                          |              |
|--------------------------|--------------|
| Temperature compensation | 10 to 100° C |
|--------------------------|--------------|

Options

·

MAGIC™ (for PAL) : RE-39411

·

PAL-CASE : RE-39409

·

PAL Silicone Cover : RE-39413

·

STRAP : RE-39410

Patent for Invention Registration No. ZL200310103015.2 (China)  
Patent for Design Registration No. ZL03303431.1 (China), 089244 (Taiwan)  
Patent Granted in countries around the world.

PAL-COFFEE(TDS scale), which famous Baristas are using for their important tools, has the high resolution of 0.01%.The subtle difference in the concentration of coffee and espresso can be measured.Stable readings are possible even with high-temperature, fresh brew due to the continuous measurement feature. For Brix scale, please choose PAL-Coffee(Brix). For Double scales of Brix and TDS, pleas choose PAL-Coffee(BX/TDS).

| Specifications           |                             |
|--------------------------|-----------------------------|
| Model                    | PAL-COFFEE （TDS）            |
| Cat.No.                  | 4532                        |
| Scale                    | Total Dissolved Solids(TDS) |
| Range                    | TDS : 0.00 to 22.00%        |
| Accuracy                 | ±0.15%                      |
| Temperature compensation | 10 to 100° C                |

Options

·

MAGIC™ (for PAL) : RE-39411

·

STRAP : RE-39410

·

PAL-CASE : RE-39409

·

PAL Silicone Cover : RE-39413

Patent for Invention Registration No. ZL200310103015.2 (China)  
Patent for Design Registration No. ZL03303431.1 (China), 089244 (Taiwan)  
Patent Granted in countries around the world.

PAL-COFFEE(Dual sale of Brix and TDS), which famous Baristas are using for their important tools, has the high resolution of 0.01%.The subtle difference in the

Refractometer PAL-COFFEE (TDS)

Digital Pocket Refractometer PAL-COFFEE (BX/TDS)

Pocket Tea Concentration Meter PAL-Tea

"Pocket" Milk Refractometer PAL-MILK



Enlargement

Send an inquiry

Quantity

Request Quotation

Magnesium chloride Refractometer PAL-43S

PAL-Ramen Meister-Set

PAL Dashi Meister set

Digital Hand-held "Pocket" SALT METER PAL-SALT

Digital Hand-held "Pocket" SALT METER PAL-SALT Mohr

Digital Hand-held “Pocket” Salt-meter PAL-SALT PROBE

concentration of coffee and espresso can be measured.Stable readings are possible even with high-temperature, fresh brew due to the continuous measurement feature.

For Brix scale, please choose [PAL-Coffee\(Brix\)](#).

For TDS scale, pleas choose [PAL-Coffee\(TDS\)](#).

| Specifications           |                                               |
|--------------------------|-----------------------------------------------|
| Model                    | PAL-COFFEE （BX/TDS）                           |
| Cat.No.                  | 4533                                          |
| Scale                    | Brix<br>Todal Dissolved Solids(TDS)           |
| Range                    | Brix : 0.00 to 25.00%<br>TDS : 0.00 to 22.00% |
| Accuracy                 | Brix : ±0.10%<br>TDS : ±0.15%                 |
| Temperature compensation | 10 to 100℃                                    |

| Options                                                                                                                                                    |  |
|------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| <div><div>· MAGIC™ (for PAL) : RE-39411</div><div>· PAL-CASE : RE-39409</div><div>· PAL Silicone Cover : RE-39413</div><div>· STRAP : RE-39410</div></div> |  |

Patent for Invention Registration No. ZL200310103015.2 (China)

Patent for Design Registration No. ZL03303431.1 (China), 089244 (Taiwan)

Patent Granted in countries around the world.

The PAL-Tea is capable of measurements at a high resolution (RES). The 0.01% RES (up to the second decimal) allows for precise management of even the slightest variations in tea concentration.The unit is capable of automatically detecting temperature stability, which allows for stable, consistent measurements even at high temperatures—such as measuring hot, freshly brewed tea.

| Specifications |                       |
|----------------|-----------------------|
| Model          | PAL-Tea               |
| Cat.No.        | 4535                  |
| Scale          | Brix                  |
| Range          | Brix : 0.00 to 25.00% |
| Accuracy       | ±0.10%                |
| Temperature    |                       |



Send an inquiry

Quantity

Request Quotation

Dried fish Salt-meter PAL-FM1

Salinity Refractometer PAL-106S

Salinity Refractometer PAL-04S

Salinity Refractometer PAL-05S

Seawater Refractometer PAL-06S

Sea water Refractometer



Send an inquiry

Quantity

Request Quotation

PAL-07S

|              |             |
|--------------|-------------|
| compensation | 10 to 100°C |
|--------------|-------------|

The unit displays the non-fat solids contained in milk.

The unit is equipped with a scale that corresponds to measurement values obtained from ultrasonic milk analyzers, allowing the non-fat solied contained in milk to quickley be determined.

| Specifications           |                                   |
|--------------------------|-----------------------------------|
| Model                    | PAL-MILK                          |
| Cat.No.                  | 3807                              |
| Scale                    | Non-Fat Milk Solids               |
| Range                    | Non-Fat Milk Solids: 0.0 to 23.0% |
| Accuracy                 | ±0.2%                             |
| Temperature compensation | 10 to 100°C                       |

You can measure Magnesium chloride based Snow-melting agent by PAL-43S easily on the road. Also, PAL-43S can be used to measure magnesium chloride solution used as coagulant when making Tofu.

| Specifications           |                                   |
|--------------------------|-----------------------------------|
| Model                    | PAL-43S                           |
| Cat.No.                  | 4443                              |
| Scale                    | Magnesium chloride                |
| Range                    | Magnesium chloride : 0.0 to 30.0% |
| Accuracy                 | ±0.2%                             |
| Temperature compensation | 10 to 40° C                       |

| Options                                                                                                                                      |  |
|----------------------------------------------------------------------------------------------------------------------------------------------|--|
| <ul style="list-style-type: none"> <li>· PAL-CASE : RE-39409</li> <li>· PAL Silicone Cover : RE-39413</li> <li>· STRAP : RE-39410</li> </ul> |  |

Patent for Invention Registration No. ZL200310103015.2 (China)  
Patent for Design Registration No. ZL03303431.1 (China), 089244 (Taiwan)  
Patent Granted in countries around the world.

This is the essential item in creating your Ramen.The Ramen Meister Set is well known as the important item for Ramen.This set includes refractometer and salt

Sea water Refractometer  
PAL-08S




Enlargement


Send an inquiry

Quantity
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Seawater meter PAL-Fish




Enlargement


Send an inquiry

Quantity
Request Quotation

Tank



PAL-Easy SALT & DPH-2 Koi Meister Set



Digital Hand-held "Pocket" Meter for Corrosion Inhibitor Solutions PAL-AntiRust



Digital Hand-held "Pocket" Refractometer PAL-Release Agent



meter for measuring Soup/Tare.Please choose this item for keeping your taste.For user testimonials of Japanese famous ramen restaurants, click [here](#).

| Specifications |                                                                                              |
|----------------|----------------------------------------------------------------------------------------------|
| Model          | Meister-Set                                                                                  |
| Cat.No.        | 4003                                                                                         |
| Range          | Salt meter :0.00～10.0%<br>Refractometer:0.0～53.0%                                            |
| Resolution     | Salt meter:0.01%(0.00～2.99%),0.1%(3.0～10.0%)<br>Refractometer:0.1%                           |
| Accuracy       | Salt meter:±0.05%(0.00～0.99%), Relative accuracy±5% for 1.00% ～10.0%<br>Refractometer: ±0.2% |
| Power Supply   | AAA alkaline battery x 2                                                                     |

It is a set of Atago's salinity meter PAL-Easy Salt and a soup refractometer PAL-Dashi. Recommended for those who want to manage salty and concentration firmly. There are only two buttons. Easily check the difference in slight concentration of soup stock.

| Specifications |                                                                                                   |
|----------------|---------------------------------------------------------------------------------------------------|
| Model          | Meister set                                                                                       |
| Cat.No.        | 4001                                                                                              |
| Range          | Salt meter :0.00 to 10.0%<br>Refractometer :0.00 to 25.00%                                        |
| Resolution     | Salt meter :0.01%(0.00 to 2.99%),0.1%(3.0 to 10.0%)<br>Refractometer:0.01%                        |
| Accuracy       | Salt meter :±0.05%(0.00 to 0.99%)    Relative precision±5%(1.00 to 10.0%)<br>Refractometer:±0.10% |
| Power Supply   | 2 x AAA Battery                                                                                   |

PAL-SALT is widely used in various industries for food and industrial solutions. For food products, in addition to checking salt content, salt meter is used to make sure salt is properly added and not forgotten for such product as bread, rice balls and frozen. For industrial use, salt meter is widely used for salt resistance test for cars and such.

**\*Offset feature use examples**

- #1. Program a dilution factor to display the original salt%
- #2. Program a conversion factor to align the readings with titration methods.

| Specifications |          |
|----------------|----------|
| Model          | PAL-SALT |



**Send an inquiry**

Quantity



For Hydrocarbon Cleaner Contamination PAL-



**Send an inquiry**

Quantity



“Pocket” Ethyl alcohol refractometer PAL-Whiskey



**Send an inquiry**



|              |                                                                                                                                            |
|--------------|--------------------------------------------------------------------------------------------------------------------------------------------|
| Cat.No.      | 4250                                                                                                                                       |
| Scale        | Salt concentration (g/100g)<br>Temperature                                                                                                 |
| Method       | Conductivity method                                                                                                                        |
| Range        | 0.00 to 10.0% (g/100g)                                                                                                                     |
| Resolution   | 0.01% for salt concentration of 0.00 to 2.99%<br>0.1% for salt concentration of 3.0 to 10.0%                                               |
| Accuracy     | Displayed value ±0.05%<br>(for salt concentration of 0.00 to 0.99%)<br>Relative precision ±5%<br>(for salt concentration of 1.00 to 10.0%) |
| Sample temp. | 5 to 100°C                                                                                                                                 |

Options

· PAL-CASE : RE-39409

· STRAP : RE-39410

· NaCl Solution 2.50% (±0.05%) AB250 [\*1] : RE-120250

[\*1] Calibration Certificate : Contact an ATAGO representative for details.

PAL-SALT Mohr gives a reading similar to those obtained from the Mohr’s method (titration). Like other ATAGO salt meters, PAL-SALT Mohr utilizes conductivity to measure samples. This unit also features an offset function which allows for readings to be compensated based on known standards.

| Specifications |                                                                                                                                            |
|----------------|--------------------------------------------------------------------------------------------------------------------------------------------|
| Model          | PAL-SALT Mohr                                                                                                                              |
| Cat.No.        | 4251                                                                                                                                       |
| Scale          | Salt concentration (g/100mL)<br>Temperature                                                                                                |
| Method         | Conductivity method                                                                                                                        |
| Range          | 0.00 to 10.0% (g/100mL)                                                                                                                    |
| Resolution     | 0.01% for salt concentration of 0.00 to 2.99%<br>0.1% for salt concentration of 3.0 to 10.0%                                               |
| Accuracy       | Displayed value ±0.05%<br>(for salt concentration of 0.00 to 0.99%)<br>Relative precision ±5%<br>(for salt concentration of 1.00 to 10.0%) |
| Sample temp.   | 5～100°C                                                                                                                                    |

Options

· PAL-CASE : RE-39409

QuantityRequest Quotation

“Pocket” Ethyl alcohol refractometer PAL-Vodka

“Pocket” Ethyl alcohol refractometer PAL-Tequila

“Pocket” Ethyl alcohol refractometer PAL-Shochu

“Pocket” Ethyl alcohol refractometer PAL-Gin

“Pocket” Ethyl alcohol refractometer PAL-Rum

“Pocket” Ethyl alcohol refractometer PAL-Brandy



Send an inquiry

QuantityRequest Quotation

Digital Hand-held "Pocket" Refractometer PAL-Plato

Wine Refractometer PAL-79S

Wine Refractometer PAL-80S

- STRAP : RE-39410
- PAL Silicone Cover : RE-39413
- NaCl Solution 2.50% (±0.05%) AB250 [\*1] : RE-120250

The PAL-SALT PROBE features convenient operation of submerging the probe in a liquid for measuring the salt content in as fast as 3 seconds. The probe may be inserted directly into semi-solid food. However,measurements at different locations may be inconsistent,and such direct measurements may vary from measurements by dilution methods.

- Electrode pins have extended from 5mm to 10mm for easier measurement.
- Screen now features a backlight for an easier to read

| Specifications                 |                                                                                                               |
|--------------------------------|---------------------------------------------------------------------------------------------------------------|
| Model                          | PAL-SALT PROBE                                                                                                |
| Cat.No.                        | 4222                                                                                                          |
| Scale                          | Salt concentration (g/100g)                                                                                   |
| Method                         | Conductivity method                                                                                           |
| Range                          | 0.00 to 7.0%                                                                                                  |
| Resolution                     | 0.01% (0.00 to 1.99%)<br>0.1% (2.0 to 7.0%)                                                                   |
| Accuracy                       | ± 0.1% (0.00 to 1.99%)<br>Relative precision : ± 5% (2.1 to 5.0%)<br>Relative precision : ± 10% (5.1 to 7.0%) |
| Power Supply                   | 2 × AAA Batteries                                                                                             |
| International Protection Class | IP65 Water resistant                                                                                          |
| Included Accessories           | NaCl Solution 2.5% (30mL) : RE-143025                                                                         |
| Dimensions & Weight            | Main Unit : 55(W)×31(D)×109(H)mm, 100g<br>Electrode probe : Φ10×530mm (Cable length : applox.400mm)           |

The PAL-FM1 features convenient operation of direct measuring of salt in dried fish by the probe. It only takes 3 seconds to measure. However, measurements at different locations may be inconsistent, and such direct measurements may vary from measurements by dilution methods.

| Specifications |                   |
|----------------|-------------------|
| Model          | PAL-FM1           |
| Cat.No.        | 4221              |
| Scale          | Dried fish salt % |
|                |                   |

Wine Refractometer PAL-83S



Wine Refractometer PAL-



 Enlargement

 Send an inquiry

Quantity

Request Quotation

84S



Wine Refractometer PAL-86S



Wine Refractometer PAL-87S



"Pocket" Urine Specific Gravity Refractometer PAL-10S



"Pocket" Salt-meter PAL-Easy SALT



Digital Hand-held "Pocket"



 Enlargement

 Send an inquiry

|                                |                                                                                             |
|--------------------------------|---------------------------------------------------------------------------------------------|
| Range                          | 0.0~10.0%<br>(Automatic Temperature Compensation)                                           |
| Resolution                     | 0.1%                                                                                        |
| Power Supply                   | 2 × AAA Batteries                                                                           |
| International Protection Class | IP65 Water resistant                                                                        |
| Dimensions & Weight            | Main Unit:55(W)×31(D)×109(H)mm<br>Electrode probe : Φ10×530mm (Cable length : applox.400mm) |

PAL-106S is suitable for measurement and management of the salt concentration in salt water solution up to 33% (g/100mL).

| Specifications           |                           |
|--------------------------|---------------------------|
| Model                    | PAL-106S                  |
| Cat.No.                  | 4506                      |
| Scale                    | Sodium Chloride (g/100mL) |
| Range                    | 0.0 to 33.0%(g/100mL)     |
| Accuracy                 | Sodium Chloride : ±0.2%   |
| Temperature compensation | 10 to 40° C               |

| Options                         |  |
|---------------------------------|--|
| · PAL-CASE : RE-39409           |  |
| · PAL Silicone Cover : RE-39413 |  |
| · STRAP : RE-39410              |  |

Patent for Invention Registration No. ZL200310103015.2 (China)  
Patent for Design Registration No. ZL03303431.1 (China), 089244 (Taiwan)  
Patent Granted in countries around the world.

PAL-04S is suitable to measure the specific gravity of salt water solution.We recommend this model to the customer who are using glass-made hydrometer as the scale is same as hydrometer.

| Specifications |                        |
|----------------|------------------------|
| Model          | PAL-04S                |
| Cat.No.        | 4404                   |
| Scale          | Sodium chloride (S.G.) |
| Range          | 1.000 to 1.217         |

Quantity

Request Quotation

Serum protein

Refractometer PAL-11S

"Pocket" Dextran

Refractometer PAL-12S

"Pocket" Glycerin



Send an inquiry

Quantity

Request Quotation

Refractometer PAL-23S

"Pocket" Glycerin

Refractometer PAL-24S

Digital Hand-held "Pocket"

Citric acid Refractometer

PAL-29S

"Pocket" Acetic Acid



Send an inquiry

|                          |             |
|--------------------------|-------------|
| Accuracy                 | ±0.002      |
| Temperature compensation | 10 to 40° C |

Options

· PAL-CASE : RE-39409

· PAL Silicone Cover : RE-39413

· STRAP : RE-39410

Patent for Invention Registration No. ZL200310103015.2 (China)

Patent for Design Registration No. ZL03303431.1 (China), 089244 (Taiwan)

Patent Granted in countries around the world.

PAL-05S is suitable to measure Baume of salt water concentration.

We recommend to the customer who are using Hydrometer as the scale is same as Hydrometer.

| Specifications           |                         |
|--------------------------|-------------------------|
| Model                    | PAL-05S                 |
| Cat.No.                  | 4405                    |
| Scale                    | Sodium chloride (Baume) |
| Range                    | 0.0 to 25.7°            |
| Accuracy                 | ±0.2°                   |
| Temperature compensation | 10 to 40° C             |

Options

· PAL-CASE : RE-39409

· PAL Silicone Cover : RE-39413

· STRAP : RE-39410

Patent for Invention Registration No. ZL200310103015.2 (China)

Patent for Design Registration No. ZL03303431.1 (China), 089244 (Taiwan)

Patent Granted in countries around the world.

This model is for measuring the salinity in seawater.

| Specifications |         |
|----------------|---------|
| Model          | PAL-06S |
| Cat.No.        | 4406    |
|                |         |

Quantity

Request Quotation

Refractometer PAL-30S



"Pocket" Phosphoric Acid

Refractometer PAL-32S



Ethyl alcohol Meter PAL-33S



Ethyl alcohol Meter PAL-34S



"Pocket" Dimethyl  
Formamide Refractometer



✉

Send an inquiry

Quantity

Request Quotation

PAL-38S



Urine Specific Gravity

Refractometer PAL-

DOG&CAT



Urine Specific Gravity

Refractometer PAL-DOG



Urine Specific Gravity

Refractometer PAL-CAT



Urine Specific Gravity

Refractometer PAL-RABBIT



ATAGO DEHYDRATION



|                          |                      |
|--------------------------|----------------------|
| Scale                    | Salinity of Seawater |
| Range                    | 0 to 100‰            |
| Accuracy                 | ±2‰                  |
| Temperature compensation | 10 to 40° C          |

Options

· PAL-CASE : RE-39409

· PAL Silicone Cover : RE-39413

· STRAP : RE-39410

Patent for Invention Registration No. ZL200310103015.2 (China)

Patent for Design Registration No. ZL03303431.1 (China), 089244 (Taiwan)

Patent Granted in countries around the world.

This model is suitable to measure the specific gravity of sea water.

| Specifications           |                                   |
|--------------------------|-----------------------------------|
| Model                    | PAL-07S                           |
| Cat.No.                  | 4407                              |
| Scale                    | Sea water (S.G.)                  |
| Range                    | Sea water (S.G.) : 1.000 to 1.070 |
| Accuracy                 | ±0.002                            |
| Temperature compensation | 10 to 40° C                       |

Options

· PAL-CASE : RE-39409

· PAL Silicone Cover : RE-39413

· STRAP : RE-39410

Patent for Invention Registration No. ZL200310103015.2 (China)

Patent for Design Registration No. ZL03303431.1 (China), 089244 (Taiwan)

Patent Granted in countries around the world.

This model is for measuring salinity in seawater by baume scale.

| Specifications |         |
|----------------|---------|
| Model          | PAL-08S |
|                |         |



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Salinity Refractometer PAL-03CS



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Calcium Chloride Refractometer PAL-41S



"Pocket" Copper Sulfate Refractometer PAL-53S



"Pocket" Copper Sulfate Refractometer PAL-54S



"Pocket" Sodium Bicarbonate Refractometer PAL-64S



|                          |                                  |
|--------------------------|----------------------------------|
| Cat.No.                  | 4408                             |
| Range                    | Sea water (Baume) : 0.0 to 10.0° |
| Resolution               | 0.1°                             |
| Accuracy                 | ±0.2°                            |
| Temperature compensation | 10 to 40° C                      |

Options

- PAL-CASE : RE-39409
- PAL Silicone Cover : RE-39413
- STRAP : RE-39410

Patent for Invention Registration No. ZL200310103015.2 (China)  
 Patent for Design Registration No. ZL03303431.1 (China), 089244 (Taiwan)  
 Patent Granted in countries around the world.

This model is for measuring the salinity in seawater.

The only one model in the world adopt the titanium as an electrode.

It is resistant to scratches and has much durability.

| Specifications |                       |
|----------------|-----------------------|
| Model          | PAL-Fish Tank         |
| Cat.No.        | 4121                  |
| Range          | Salinity:0.0 to 45.0‰ |
| Minimum Scale  | 0.1‰                  |
| Accuracy       | ±2.0‰                 |

It is a set that can measure "salinity" and "pH" which are important for a carp.

| Specifications     |                                                                       |
|--------------------|-----------------------------------------------------------------------|
| Model              | Koi Meister Set                                                       |
| Cat.No.            | 4020                                                                  |
| Range              | Salinity: 0.00 to 10.0%<br>pH: 0.0 to 14.0pH                          |
| Minimum Indication | Salinity :<br>0.01%(0.00 to 2.99%)<br>0.1%(3.0 to 10.0%)<br>pH :0.1pH |
|                    | Salinity:                                                             |



Enlargement


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"Pocket" Sodium Tartrate Refractometer PAL-65S



"Pocket" Potassium Phosphate Refractometer



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PAL-7



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|          |                                                                                        |
|----------|----------------------------------------------------------------------------------------|
| Accuracy | ±0.05%(0.00 to 0.99%)<br>Relative accuracy:±5%(1.00 to 10.0%)<br>pH:±0.1pH(2.0～12.0pH) |
|----------|----------------------------------------------------------------------------------------|

The high resolution of 0.01% makes the PAL-AntiRust ideal for measuring low-concentration solutions, such as corrosion inhibitor fluids.

| Specifications           |                           |
|--------------------------|---------------------------|
| Model                    | PAL-AntiRust              |
| Cat.No.                  | 4537                      |
| Scale                    | AntiRust                  |
| Range                    | AntiRust : 0.00 to 25.00% |
| Accuracy                 | ±0.10%                    |
| Temperature compensation | 10 to 100° C              |

| Options                         |  |
|---------------------------------|--|
| · PAL-CASE : RE-39409           |  |
| · PAL Silicone Cover : RE-39413 |  |
| · STRAP : RE-39410              |  |

Patent for Invention Registration No. ZL200310103015.2 (China)  
Patent for Design Registration No. ZL03303431.1 (China), 089244 (Taiwan)  
Patent Granted in countries around the world.

This is for concentration of release agent.With high resolution of 2 decimal places 0.01%, you can use it for the management of slight changes in concentration.

| Specifications           |                   |
|--------------------------|-------------------|
| Model                    | PAL-Release Agent |
| Cat.No.                  | 4538              |
| Range                    | 0.00 to 25.00%    |
| Minimum Indication       | 0.01%             |
| Accuracy                 | ±0.10%            |
| Temperature compensation | 10 to 100° C      |

Displays Contam. (oil) % dissolved in hydrocarbon cleaner solution.



Polyvinyl alcohol  
Refractometer PAL-85S



 Enlargement

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"Pocket" Propylene Glycol  
Refractometer PAL-88S



“Pocket” Moisture  
Refractometer PAL-Moisture



Digital ‘Pocket’ Dried Fruit  
Moisture Meter PAL-Dried  
Fruit Moisture



 Enlargement

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Digital Hand-held “Pocket”  
Refractometer PAL-  
Colostrum

This instrument displays the Contam. (oil) % dissolved in hydrocarbon cleaner solution used in cleaning processes. If new cleaning solution is first measured and recorded on the instrument, then contaminated solution will display as "Contam. (oil)%." This measurement can be used to determine the timing of when to change (or distill) the cleaning solution.

| Specifications           |                          |
|--------------------------|--------------------------|
| Model                    | PAL-Hydrocarbon Cleaner  |
| Cat.No.                  | 4558                     |
| Scale                    | Contam. %                |
| Range                    | Contam. % : 0.0 to 30.0% |
| Accuracy                 | ±1.0%                    |
| Temperature compensation | 10 to 100 ° C            |

This model has the ethyl alcohol scale, and concentrations are displayed in mL/100mL.

| Specifications           |                               |
|--------------------------|-------------------------------|
| Model                    | PAL-Whiskey                   |
| Cat.No.                  | 4540                          |
| Scale                    | Ethyl alcohol                 |
| Range                    | Ethyl alcohol : 0.0 to 53.00% |
| Accuracy                 | Ethyl alcohol: ±1.0%          |
| Temperature compensation | 5 to 30°C                     |

The product is in conformity with the requirements of the EMC Directive 2004/108/EC.

Patent Granted in Japan, United States, Germany, China and Taiwan.

This model has the ethyl alcohol scale, and concentrations are displayed in mL/100mL.

| Specifications |               |
|----------------|---------------|
| Model          | PAL-Vodka     |
| Cat.No.        | 4541          |
| Scale          | Ethyl alcohol |
| Range          | 0.0 to 53.00% |
| Accuracy       | ±1.0%         |
|                |               |



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Isopropyl alcohol  
Refractometer PAL-37S



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Isopropyl alcohol  
Refractometer PAL-131S



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|                          |           |
|--------------------------|-----------|
| Temperature compensation | 5 to 30°C |
|--------------------------|-----------|

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Common Specification

The product is in conformity with the requirements of the EMC Directive 2004/108/EC.

Patent Granted in Japan, United States, Germany, China and Taiwan.

This model has the ethyl alcohol scale, and concentrations are displayed in mL/100mL.

| Specifications           |               |
|--------------------------|---------------|
| Model                    | PAL-Tequila   |
| Cat.No.                  | 4542          |
| Scale                    | Ethyl alcohol |
| Range                    | 0.0 to 53.00% |
| Accuracy                 | ±1.0%         |
| Temperature compensation | 5 to 30°C     |

The product is in conformity with the requirements of the EMC Directive 2004/108/EC.

Patent Granted in Japan, United States, Germany, China and Taiwan.

This model has the ethyl alcohol scale, and concentrations are displayed in mL/100mL.

| Specifications           |               |
|--------------------------|---------------|
| Model                    | PAL-Shochu    |
| Cat.No.                  | 4543          |
| Scale                    | Ethyl alcohol |
| Range                    | 0.0 to 53.00% |
| Accuracy                 | ±1.0%         |
| Temperature compensation | 5 to 30°C     |

The product is in conformity with the requirements of the EMC Directive 2004/108/EC.

Patent Granted in Japan, United States, Germany, China and Taiwan.



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This model has the ethyl alcohol scale, and concentrations are displayed in mL/100mL.

| Specifications           |               |
|--------------------------|---------------|
| Model                    | PAL-Gin       |
| Cat.No.                  | 4544          |
| Scale                    | Ethyl alcohol |
| Range                    | 0.0 to 53.00% |
| Accuracy                 | ±1.0%         |
| Temperature compensation | 5 to 30°C     |

- Options
- PAL-CASE : RE-39409

· PAL Silicone Cover : RE-39413

· STRAP : RE-39410

The product is in conformity with the requirements of the EMC Directive 2004/108/EC.

Patent Granted in Japan, United States, Germany, China and Taiwan.

This model has the ethyl alcohol scale, and concentrations are displayed in mL/100mL.

| Specifications           |               |
|--------------------------|---------------|
| Model                    | PAL-Rum       |
| Cat.No.                  | 4545          |
| Scale                    | Ethyl alcohol |
| Range                    | 0.0 to 53.00% |
| Accuracy                 | ±1.0%         |
| Temperature compensation | 5 to 30°C     |

The product is in conformity with the requirements of the EMC Directive 2004/108/EC.

Patent Granted in Japan, United States, Germany, China and Taiwan.

This model has the ethyl alcohol scale, and concentrations are displayed in mL/100mL.



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| Specifications           |               |
|--------------------------|---------------|
| Model                    | PAL-Brandy    |
| Cat.No.                  | 4546          |
| Scale                    | Ethyl alcohol |
| Range                    | 0.0 to 53.00% |
| Accuracy                 | ±1.0%         |
| Temperature compensation | 5 to 30° C    |

| Options                         |
|---------------------------------|
| · PAL-CASE : RE-39409           |
| · PAL Silicone Cover : RE-39413 |
| · STRAP : RE-39410              |

The product is in conformity with the requirements of the EMC Directive 2004/108/EC.

Patent Granted in Japan, United States, Germany, China and Taiwan.

The PAL-Plato is designed for breweries to measure the specific gravity of sweet wort in degrees Plato. Advantages of the PAL-Plato include : Two buttons for easy operation, an LCD screen for objective readings, and Automatic Temperature Compensation up to 75°C (212°F)! Additionally, taking measurements with the PAL-Plato only requires a few drops of sample, and it provides accurate readings within 3 seconds!

| Specifications           |                        |
|--------------------------|------------------------|
| Model                    | PAL-Plato              |
| Cat.No.                  | 4590                   |
| Scale                    | Plato                  |
| Range                    | Plato : 0.0 to 30.0° P |
| Accuracy                 | ± 0.2° P               |
| Temperature compensation | 10 to 75° C            |

| Options                         |
|---------------------------------|
| · PAL-CASE : RE-39409           |
| · PAL Silicone Cover : RE-39413 |
| · STRAP : RE-39410              |



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Patent for Invention Registration No. ZL200310103015.2 (China)

Patent for Design Registration No. ZL03303431.1 (China), 089244 (Taiwan)

Patent Granted in countries around the world.

PAL wine series are light and compact.PAL-79S has the scale of T.A.1990.

| Specifications           |              |
|--------------------------|--------------|
| Model                    | PAL-79S      |
| Cat.No.                  | 4479         |
| Scale                    | T.A.1990     |
| Range                    | 0.0 to 26.0% |
| Accuracy                 | ± 0.2%       |
| Temperature compensation | 10 to 40°C   |

| Options                                                                  |  |
|--------------------------------------------------------------------------|--|
| · PAL-CASE : RE-39409                                                    |  |
| · STRAP : RE-39410                                                       |  |
| * Calibration Certificate : Contact an ATAGO representative for details. |  |

PAL's wine series are light and compact, it is portable for both indoor use and outdoors. PAL-80S has the scale of T.A.1971.

| Specifications           |              |
|--------------------------|--------------|
| Model                    | PAL-80S      |
| Cat.No.                  | 4480         |
| Scale                    | T.A.1971     |
| Range                    | 0.0 to 25.0% |
| Accuracy                 | ± 0.2%       |
| Temperature compensation | 10 to 40°C   |

| Options                                                                  |  |
|--------------------------------------------------------------------------|--|
| · PAL-CASE : RE-39409                                                    |  |
| · STRAP : RE-39410                                                       |  |
| * Calibration Certificate : Contact an ATAGO representative for details. |  |

PAL wine series are light and compact, it has the scale of KMW (Babo).



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| Specifications           |               |
|--------------------------|---------------|
| Model                    | PAL-83S       |
| Cat.No.                  | 4483          |
| Scale                    | KMW (or Babo) |
| Range                    | 0.0 to 40.0°  |
| Accuracy                 | ±0.2°         |
| Temperature compensation | 10 to 40°C    |

| Options                                                                                                                                                                               |  |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| <ul style="list-style-type: none"> <li>· PAL-CASE : RE-39409</li> <li>· STRAP : RE-39410</li> <li>* Calibration Certificate : Contact an ATAGO representative for details.</li> </ul> |  |

PAL wine series are light and compact, it is the scale of Baume.

| Specifications           |              |
|--------------------------|--------------|
| Model                    | PAL-84S      |
| Cat.No.                  | 4484         |
| Scale                    | Baume        |
| Range                    | 0.0 to 21.0° |
| Accuracy                 | ± 0.2°       |
| Temperature compensation | 10 to 40°C   |

| Options                                                                                                                                                                               |  |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| <ul style="list-style-type: none"> <li>· PAL-CASE : RE-39409</li> <li>· STRAP : RE-39410</li> <li>* Calibration Certificate : Contact an ATAGO representative for details.</li> </ul> |  |

PAL wine series are light and compact, it has dual scales of Oe (GER) and Brix.

| Specifications |                                             |
|----------------|---------------------------------------------|
| Model          | PAL-86S                                     |
| Cat.No.        | 4486                                        |
| Scale          | Oe (GER) / Brix                             |
| Range          | Oe (GER) : 0 to 240°<br>Brix : 0.0 to 53.0% |
|                | Oe (GER) : ± 1°                             |



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|--------------------------|--------------------|
| Accuracy                 | Brix : $\pm 0.2\%$ |
| Temperature compensation | 10 to 40°C         |

### Options

- PAL-CASE : RE-39409
- STRAP : RE-39410
- \* Calibration Certificate : Contact an ATAGO representative for details.

PAL wine series are light and compact.PAL-87S has the dual scales of Oe (Oechsle) and Brix.

| Specifications           |                                                      |
|--------------------------|------------------------------------------------------|
| Model                    | PAL-87S                                              |
| Cat.No.                  | 4487                                                 |
| Scale                    | Oe (Oechsle)/Brix                                    |
| Range                    | Oe (Oechsle) : 0 to 240°<br>Brix : 0.0 to 53.0%      |
| Accuracy                 | Oe (Oechsle) : $\pm 1^{\circ}$<br>Brix : $\pm 0.2\%$ |
| Temperature compensation | 10 to 40°C                                           |

### Options

- PAL-CASE : RE-39409
- STRAP : RE-39410
- \* Calibration Certificate : Contact an ATAGO representative for details.

The PAL-10S is a digital hand-held compact refractometer to measure urine S.G. To operate it, simply place a drop of urine on the prism top and press the "Start"key. Then, the urine S.G. value will be displayed on the LCD instantly.

| Specifications |                               |
|----------------|-------------------------------|
| Model          | PAL-10S                       |
| Cat.No.        | 4410                          |
| Scale          | Urine (S.G.)                  |
| Range          | Urine S.G. : 1.0000 to 1.0600 |
| Resolution     | Urine S.G. : 0.0001           |
| Accuracy       | Urine S.G. : $\pm 0.001$      |
| Temperature    |                               |

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|              |            |
|--------------|------------|
| compensation | 10 to 35°C |
|--------------|------------|

Options

- PAL-CASE : RE-39409
- STRAP : RE-39410
- \* Calibration Certificate : Contact an ATAGO representative for details.

Patent for Design Registration No. ZL200310103015.2 (China)

Patent for Invention Registration No. ZL03303431.1 (China), 089244 (Taiwan)

Patent Granted in countries around the world.

Professional salinity meter that can easily control salinity with high accuracy. It is the only titanium electrode in the world and durability is outstanding.

| Specifications           |                                                                |
|--------------------------|----------------------------------------------------------------|
| Model                    | PAL-Easy SALT                                                  |
| Cat.No.                  | 4101                                                           |
| Range                    | Sodium Chloride: 0.0 to 10.0%                                  |
| Minimum Indication       | 0.01% (up to 2.99% salt)<br>0.1% (above 3.00% salt)            |
| Accuracy                 | ±0.05% (up to 0.99%)<br>Relative precision of ±5% above 1.00%) |
| Temperature compensation | 5 to 100°C                                                     |

Blood Serum Protein Measurements with Only a Small Amount of Sample

The Digital Hand-held "Pocket" Blood Serum Protein Refractometer PAL-11S is simple to operate, allowing anyone to take precise and accurate blood serum protein measurements quickly and easily. It requires only a small amount of sample and measurement time is just 3 seconds. Its waterproof design allows the unit to be fully rinsed under running water, making clean-up after measurements a breeze.A small volume sample adaptor is included as a standard accessory.

| Specifications |                                      |
|----------------|--------------------------------------|
| Model          | PAL-11S                              |
| Cat.No.        | 4401                                 |
| Range          | Serum protein scale: 0.0～12.0g/100mL |
| Resolution     | 0.2g/100mL                           |
| Accuracy       | ±0.2g/100mL                          |
|                |                                      |



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|                          |                                                           |
|--------------------------|-----------------------------------------------------------|
| Temperature compensation | 10 to 35° C                                               |
| Included Accessories     | A very small amount of sample adapter standard attachment |

Patent for Design Registration No. ZL200310103015.2 (China)  
Patent for Invention Registration No. ZL03303431.1 (China), 089244 (Taiwan)  
Patent Granted in countries around the world.

This model is suitable to measure the concentration of Dextran/water solution.

| Specifications           |                       |
|--------------------------|-----------------------|
| Model                    | PAL-12S               |
| Cat.No.                  | 4412                  |
| Scale                    | Dextran (g/100g)      |
| Range                    | 0.0 to 15.0% (g/100g) |
| Accuracy                 | ±0.2%                 |
| Temperature compensation | 10 to 40° C           |

| Options                                                                                                                                      |  |
|----------------------------------------------------------------------------------------------------------------------------------------------|--|
| <ul style="list-style-type: none"> <li>· PAL-CASE : RE-39409</li> <li>· PAL Silicone Cover : RE-39413</li> <li>· STRAP : RE-39410</li> </ul> |  |

Patent for Invention Registration No. ZL200310103015.2 (China)  
Patent for Design Registration No. ZL03303431.1 (China), 089244 (Taiwan)  
Patent Granted in countries around the world.

PAL-23S is suitable to measure the lower concentration of Glycerin water solution.

| Specifications           |                                       |
|--------------------------|---------------------------------------|
| Model                    | PAL-23S                               |
| Cat.No.                  | 4423                                  |
| Scale                    | Glycerin (Low concentration) (g/100g) |
| Range                    | : 0.0 to 65.0%                        |
| Accuracy                 | ±0.4%                                 |
| Temperature compensation | 10 to 40° C                           |



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Options

· PAL-CASE : RE-39409

· PAL Silicone Cover : RE-39413

· STRAP : RE-39410

Patent for Invention Registration No. ZL200310103015.2 (China)

Patent for Design Registration No. ZL03303431.1 (China), 089244 (Taiwan)

Patent Granted in countries around the world.

PAL-24S is suitable to measure the higher concentration of Glycerin/water solution.

| Specifications           |                                        |
|--------------------------|----------------------------------------|
| Model                    | PAL-24S                                |
| Cat.No.                  | 4424                                   |
| Scale                    | Glycerin (High concentration) (g/100g) |
| Range                    | 60.0 to 99.0%(g/100g)                  |
| Accuracy                 | ±0.4%                                  |
| Temperature compensation | 10 to 40° C                            |

Options

· PAL-CASE : RE-39409

· PAL Silicone Cover : RE-39413

· STRAP : RE-39410

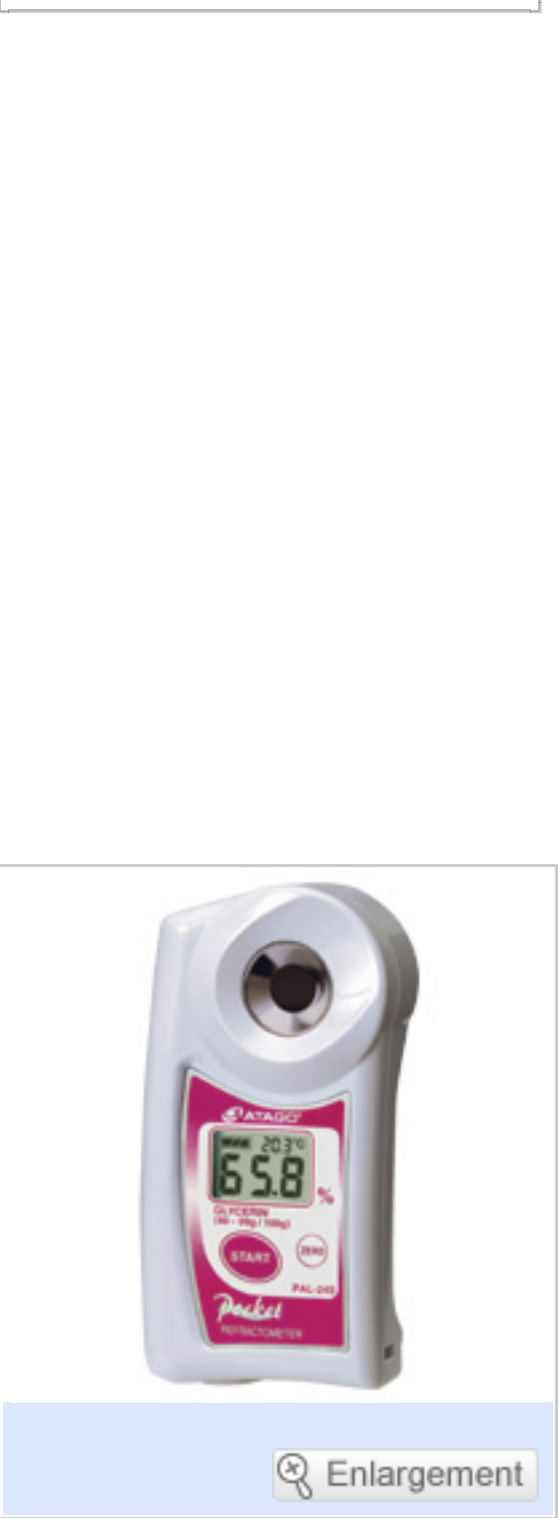
Patent for Invention Registration No. ZL200310103015.2 (China)

Patent for Design Registration No. ZL03303431.1 (China), 089244 (Taiwan)

Patent Granted in countries around the world.

PAL-29S is suitable to measure Citric acid/water solution.

| Specifications |                            |
|----------------|----------------------------|
| Model          | PAL-29S                    |
| Cat.No.        | 4429                       |
| Scale          | Citric acid (g/100g)       |
| Range          | Citric acid : 0.0 to 10.0% |
| Accuracy       | ±0.2%                      |
|                |                            |



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|                          |             |
|--------------------------|-------------|
| Temperature compensation | 10 to 40° C |
|--------------------------|-------------|

### Options

- PAL-CASE : RE-39409
- PAL Silicone Cover : RE-39413
- STRAP : RE-39410

Patent for Invention Registration No. ZL200310103015.2 (China)

Patent for Design Registration No. ZL03303431.1 (China), 089244 (Taiwan)

Patent Granted in countries around the world.

PAL-30S is suitable to measure the concentration of acetic acid /water solution.

| Specifications           |                      |
|--------------------------|----------------------|
| Model                    | PAL-30S              |
| Cat.No.                  | 4430                 |
| Scale                    | Acetic acid (g/100g) |
| Range                    | 0.0 to 20.0%         |
| Accuracy                 | ±0.4%                |
| Temperature compensation | 10 to 40° C          |

### Options

- PAL-CASE : RE-39409
- PAL Silicone Cover : RE-39413
- STRAP : RE-39410

Patent for Invention Registration No. ZL200310103015.2 (China)

Patent for Design Registration No. ZL03303431.1 (China), 089244 (Taiwan)

Patent Granted in countries around the world.

PAL-32S is suitable to measure the concentration of Phosphoric acid /water solution.

| Specifications |                          |
|----------------|--------------------------|
| Model          | PAL-32S                  |
| Cat.No.        | 4432                     |
| Scale          | Phosphoric acid (g/100g) |
| Range          | 0.0 to 20.0%             |

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|                          |             |
|--------------------------|-------------|
| Accuracy                 | ±0.4%       |
| Temperature compensation | 10 to 40° C |

### Options

- PAL-CASE : RE-39409
- PAL Silicone Cover : RE-39413
- STRAP : RE-39410

Patent for Invention Registration No. ZL200310103015.2 (China)

Patent for Design Registration No. ZL03303431.1 (China), 089244 (Taiwan)

Patent Granted in countries around the world.

This model is suitable for measuring the concentration of ethylalcohol water solution(ml/100ml)

| Specifications           |                              |
|--------------------------|------------------------------|
| Model                    | PAL-33S                      |
| Cat.No.                  | 4433                         |
| Scale                    | Ethyl alcohol (ml/100ml)     |
| Range                    | Ethyl alcohol : 0.0 to 53.0% |
| Accuracy                 | ±1.0%                        |
| Temperature compensation | 5 to 30° C                   |

### Options

- PAL-CASE : RE-39409
- PAL Silicone Cover : RE-39413
- STRAP : RE-39410

Patent for Invention Registration No. ZL200310103015.2 (China)

Patent for Design Registration No. ZL03303431.1 (China), 089244 (Taiwan)

Patent Granted in countries around the world.

This model is suitable for measuring the concentration of ethylalcohol water solution(g/100g)

| Specifications |         |
|----------------|---------|
| Model          | PAL-34S |
| Cat.No.        | 4434    |



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|                          |                              |
|--------------------------|------------------------------|
| Scale                    | Ethyl alcohol (g/100g)       |
| Range                    | Ethyl alcohol : 0.0 to 45.0% |
| Accuracy                 | ±1.0%                        |
| Temperature compensation | 10 to 35° C                  |

Options

- PAL-CASE : RE-39409
- PAL Silicone Cover : RE-39413
- STRAP : RE-39410

Patent for Invention Registration No. ZL200310103015.2 (China)  
Patent for Design Registration No. ZL03303431.1 (China), 089244 (Taiwan)  
Patent Granted in countries around the world.

PAL-38S is suitable to measure the concentration of Dimethyl formamide water solution.

| Specifications           |                    |
|--------------------------|--------------------|
| Model                    | PAL-38S            |
| Cat.No.                  | 4438               |
| Scale                    | Dimethyl formamide |
| Range                    | 0.0 to 45.0%       |
| Accuracy                 | ±0.4%              |
| Temperature compensation | 10 to 40° C        |

Options

- PAL-CASE : RE-39409
- PAL Silicone Cover : RE-39413
- STRAP : RE-39410

Patent for Invention Registration No. ZL200310103015.2 (China)  
Patent for Design Registration No. ZL03303431.1 (China), 089244 (Taiwan)  
Patent Granted in countries around the world.

### Simply and safely measure dog and cat urine specific gravity

This unit is a urine specific gravity refractometer programmed with the specific scales for both dogs and cats in one unit. Simply place 0.3mL of the sample



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(urine) on the prism, press the start button and a digital measurement value will be displayed in 3 seconds.This compact-sized, 11cm unit is water resistant so it can be washed under running water after each reading.

| Specifications           |                                              |
|--------------------------|----------------------------------------------|
| Model                    | PAL-DOG&CAT                                  |
| Cat.No.                  | 4529                                         |
| Scale                    | Urine S. G.                                  |
| Range                    | (Dog) 1.000 to 1.060<br>(Cat) 1.000 to 1.080 |
| Resolution               | 0.001                                        |
| Accuracy                 | ±0.001                                       |
| Temperature compensation | 10 to 35°C                                   |

The PAL-USG (DOG) is designed for measuring Urine Specific Gravity for dog.

| Specifications           |                              |
|--------------------------|------------------------------|
| Model                    | PAL-DOG                      |
| Cat.No.                  | 4510                         |
| Scale                    | Urine S. G.                  |
| Range                    | Urine S. G. : 1.000 to 1.060 |
| Resolution               | Urine S. G. : 0.001          |
| Accuracy                 | Urine S.G. : ±0.001          |
| Temperature compensation | 10 to 35°C                   |

| Options                                                                                                                                                     |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <div><div>· PAL-CASE : RE-39409</div><div>· STRAP : RE-39410</div><div>* Calibration Certificate : Contact an ATAGO representative for details.</div></div> |

Patent for Design Registration No. ZL200310103015.2 (China)

Patent for Invention Registration No. ZL03303431.1 (China), 089244 (Taiwan)

Patent Granted in countries around the world.

The PAL-USG (CAT) is designed for measuring Urine Specific Gravity for cat.

| Specifications |         |
|----------------|---------|
| Model          | PAL-CAT |



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|                          |                              |
|--------------------------|------------------------------|
| Cat.No.                  | 4511                         |
| Range                    | Urine S. G. : 1.000 to 1.080 |
| Resolution               | Urine S. G. : 0.001          |
| Accuracy                 | Urine S.G. : ±0.001          |
| Temperature compensation | 10 to 35°C                   |

Options

· PAL-CASE : RE-39409

· STRAP : RE-39410

\* Calibration Certificate : Contact an ATAGO representative for details.

Patent for Design Registration No. ZL200310103015.2 (China)

Patent for Invention Registration No. ZL03303431.1 (China), 089244 (Taiwan)

Patent Granted in countries around the world.

PAL-Rabbit is designed for measuring Urine Specific Gravity for rabbit.

Measurement time is 3 seconds. This is waterproof that can be wash away with water after use.

| Specifications           |                                 |
|--------------------------|---------------------------------|
| Model                    | PAL-RABBIT                      |
| Cat.No.                  | 4512                            |
| Scale                    | Urine Specific Gravity (Rabbit) |
| Range                    | 1.000 to 1.100%                 |
| Resolution               | 0.001%                          |
| Accuracy                 | ±0.002%                         |
| Temperature compensation | 10 to 35° C                     |

Patent for Invention Registration No. ZL200310103015.2 (China)

Patent for Design Registration No. ZL03303431.1 (China), 089244 (Taiwan)

Patent Granted in countries around the world.

Puede comprobar fácilmente el estado de deshidratación.

Si deja caer unas gotas de orina y presiona la tecla [Sentencia], la lámpara verde o roja se enciende en solo 3 segundos y puede conocer el estado de deshidratación.

| Specifications |                     |
|----------------|---------------------|
| Model          | DEHYDRATION CHECKER |



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|                         |                               |
|-------------------------|-------------------------------|
| Cat.No.                 | 4565                          |
| Measurement Readings    | Luces LED (Verde OK, Rojo NG) |
| Measurement temperature | 10°C a 35°C                   |
| Sample Volume           | 0.3mL                         |
| Measurement Time        | 3 segundos                    |
| Power Supply            | Pila alcalina AAA x 2         |

This is suitable to measure the concentration and freezing point of brine / deicer. Ideal for winter road maintenance.

| Specifications           |                                                                |
|--------------------------|----------------------------------------------------------------|
| Model                    | PAL-03CS                                                       |
| Cat.No.                  | 4393                                                           |
| Scale                    | Sodium chloride (g/100g)<br>Freezing point                     |
| Range                    | Sodium chloride : 0.0 to 28.0%<br>Freezing point : 0 to -22° C |
| Accuracy                 | Sodium chloride : ±0.2%(g/100g)<br>Freezing point : 1° C       |
| Temperature compensation | 10 to 40° C                                                    |

| Options                                                                                                                                      |  |
|----------------------------------------------------------------------------------------------------------------------------------------------|--|
| <ul style="list-style-type: none"> <li>• PAL-CASE : RE-39409</li> <li>• PAL Silicone Cover : RE-39413</li> <li>• STRAP : RE-39410</li> </ul> |  |

|                                                                          |
|--------------------------------------------------------------------------|
| Patent for Invention Registration No. ZL200310103015.2 (China)           |
| Patent for Design Registration No. ZL03303431.1 (China), 089244 (Taiwan) |
| Patent Granted in countries around the world.                            |

PAL-41S is suitable to measure the concentration of Calcium chloride water solution.This model is pupolar for checking the snow-melting agent.

| Specifications |         |
|----------------|---------|
| Model          | PAL-41S |
|                |         |



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|--------------------------|---------------------------------|
| Cat.No.                  | 4441                            |
| Scale                    | Calcium chloride (g/100g)       |
| Range                    | Calcium chloride : 0.0 to 35.0% |
| Accuracy                 | ±0.2%                           |
| Temperature compensation | 10 to 40° C                     |

Options

- PAL-CASE : RE-39409
- PAL Silicone Cover : RE-39413
- STRAP : RE-39410

Patent for Invention Registration No. ZL200310103015.2 (China)

Patent for Design Registration No. ZL03303431.1 (China), 089244 (Taiwan)

Patent Granted in countries around the world.

PAL-53S is suitable to measure the concentration of Copper sulfate water solution.

| Specifications           |                                        |
|--------------------------|----------------------------------------|
| Model                    | PAL-53S                                |
| Cat.No.                  | 4453                                   |
| Scale                    | Copper sulfate (Concentration)(g/100g) |
| Range                    | 0.0 to 20.0%                           |
| Accuracy                 | ±0.2%                                  |
| Temperature compensation | 10 to 40° C                            |

Options

- PAL-CASE : RE-39409
- PAL Silicone Cover : RE-39413
- STRAP : RE-39410

Patent for Invention Registration No. ZL200310103015.2 (China)

Patent for Design Registration No. ZL03303431.1 (China), 089244 (Taiwan)

Patent Granted in countries around the world.

Digitally displays the specific gravity of copper sulfate used to measure the specific gravity of blood. Measurement time is just 3 seconds. Its waterproof design allows it to be fully rinsed under running water. Perfect for use in medical institutions and laboratory centers.



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| Specifications           |                       |
|--------------------------|-----------------------|
| Model                    | PAL-54S               |
| Cat.No.                  | 4454                  |
| Scale                    | Copper sulfate (S.G.) |
| Range                    | 1.000 to 1.210        |
| Resolution               | 0.001                 |
| Accuracy                 | ±0.002                |
| Temperature compensation | 10 to 40° C           |

| Options                                                                                                                                  |
|------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"><li>· PAL-CASE : RE-39409</li><li>· PAL Silicone Cover : RE-39413</li><li>· STRAP : RE-39410</li></ul> |

|                                                                          |
|--------------------------------------------------------------------------|
| Patent for Invention Registration No. ZL200310103015.2 (China)           |
| Patent for Design Registration No. ZL03303431.1 (China), 089244 (Taiwan) |
| Patent Granted in countries around the world.                            |

PAL-64S is suitable to measure the concentration of Sodium bicarbonate/water solution.

| Specifications           |                             |
|--------------------------|-----------------------------|
| Model                    | PAL-64S                     |
| Cat.No.                  | 4464                        |
| Scale                    | Sodium bicarbonate (g/100g) |
| Range                    | 0.0 to 10.0%                |
| Accuracy                 | ±0.3%                       |
| Temperature compensation | 10 to 40° C                 |

| Options                                                                                                                                  |
|------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"><li>· PAL-CASE : RE-39409</li><li>· PAL Silicone Cover : RE-39413</li><li>· STRAP : RE-39410</li></ul> |

|                                                                          |
|--------------------------------------------------------------------------|
| Patent for Invention Registration No. ZL200310103015.2 (China)           |
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| Patent Granted in countries around the world.                            |



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PAL-65S is suitable to measure the concentration of Sodium tartrate /water solution.

| Specifications           |                          |
|--------------------------|--------------------------|
| Model                    | PAL-65S                  |
| Cat.No.                  | 4465                     |
| Scale                    | Sodium tartrate (g/100g) |
| Range                    | 0.0 to 25.0%             |
| Accuracy                 | ±0.2%                    |
| Temperature compensation | 10 to 40° C              |

| Options                         |  |
|---------------------------------|--|
| · PAL-CASE : RE-39409           |  |
| · PAL Silicone Cover : RE-39413 |  |
| · STRAP : RE-39410              |  |

Patent for Invention Registration No. ZL200310103015.2 (China)

Patent for Design Registration No. ZL03303431.1 (China), 089244 (Taiwan)

Patent Granted in countries around the world

PAL-70S is suitable to measure the concentration of Potassium phosphate/water solution.

| Specifications           |                     |
|--------------------------|---------------------|
| Model                    | PAL-70S             |
| Cat.No.                  | 4470                |
| Scale                    | Potassium phosphate |
| Range                    | 0.0 to 15.0%        |
| Accuracy                 | ±0.3%               |
| Temperature compensation | 10 to 40° C         |

| Options                         |  |
|---------------------------------|--|
| · PAL-CASE : RE-39409           |  |
| · PAL Silicone Cover : RE-39413 |  |
| · STRAP : RE-39410              |  |



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Patent Granted in countries around the world.

Specifications

|                          |                                  |
|--------------------------|----------------------------------|
| Model                    | PAL-85S                          |
| Cat.No.                  | 4485                             |
| Scale                    | Polyvinyl alcohol                |
| Range                    | Polyvinyl alcohol : 0.0 to 20.0% |
| Accuracy                 | ±0.2%                            |
| Temperature compensation | 10 to 35° C                      |

Options

- PAL-CASE : RE-39409
- PAL Silicone Cover : RE-39413
- STRAP : RE-39410

Patent for Invention Registration No. ZL200310103015.2 (China)

Patent for Design Registration No. ZL03303431.1 (China), 089244 (Taiwan)

Patent Granted in countries around the world.

The "Pocket" Propylene Glycol Refractometers, PAL-88S easily measures Propylene Glycol solutions and display the results digitally. The freezing point of the sample can also be measured and displayed.

Specifications

|             |                                                                                |
|-------------|--------------------------------------------------------------------------------|
| Model       | PAL-88S                                                                        |
| Cat.No.     | 4488                                                                           |
| Scale       | Concentration of Propylene Glycol (V/V)<br>Freezing point (° C)<br>Temperature |
| Range       | Concentration of P.G:<br>0.0 to 90.0% (V/V)<br>Freezing point: 0 to -50° C     |
| Accuracy    | Concentration : ±0.4% (V/V)<br>Freezing point: ±1° C                           |
| Temperature | 10 to 40° C                                                                    |



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Options

· PAL-CASE : RE-39409

· PAL Silicone Cover : RE-39413

· STRAP : RE-39410

Patent for Invention Registration No. ZL200310103015.2 (China)

Patent for Design Registration No. ZL03303431.1 (China), 089244 (Taiwan)

Patent Granted in countries around the world.

This moisture meter provides quick estimation of water content, which is calculated by using the following formula : Moisture content = 100 – Brix

Brix represents the weight of sucrose in 100 grams of sucrose solution as percentage by weight. When other dissolved solids are present in the solution, Brix conversion may be applied.

Brix is a measure of the total dissolved solids in a solution and indicates the combined concentration of all soluble substances, such as sugar, salt, protein, and acids.

| Specifications           |                                                    |
|--------------------------|----------------------------------------------------|
| Model                    | PAL-Moisture                                       |
| Cat.No.                  | 4573                                               |
| Scale                    | Moisture content                                   |
| Range                    | Moisture content : 7.0 to 100% (g/100g)            |
| Accuracy                 | ±0.2% (When measuring a standard sucrose solution) |
| Temperature compensation | 10 to 100°C                                        |

Options

· PAL-CASE : RE-39409

· STRAP : RE-39410

· PAL Silicone Cover : RE-39413

Patent for Invention Registration No. ZL200310103015.2 (China)

Patent for Design Registration No. ZL03303431.1 (China), 089244 (Taiwan)

Patent Granted in countries around the world.

For approximate water content of dried fruits

This measures in Brix and displays (100-Brix)% for approximate water content.Halve a piece of dried fruit and place it cut side down. Press it down with



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the included MAGIC adapter.

| Specifications           |                              |
|--------------------------|------------------------------|
| Model                    | PAL-Dried Fruit Moisture     |
| Cat.No.                  | 4574                         |
| Scale                    | Moisture                     |
| Range                    | Moisture : 7.0 to 100 %      |
| Accuracy                 | ±0.2 % (by sucrose solution) |
| Temperature compensation | 10 to 100 ° C                |

| Options                                                                                                            |  |
|--------------------------------------------------------------------------------------------------------------------|--|
| <div><div>· PAL-CASE : RE-39409</div><div>· PAL Silicone Cover : RE-39413</div><div>· STRAP : RE-39410</div></div> |  |

Patent for Invention Registration No. ZL200310103015.2 (China)

Patent for Design Registration No. ZL03303431.1 (China), 089244 (Taiwan)

Patent Granted in countries around the world.

This model can be used for determining the quality of colostrum to protect and nurture the health of your livestock and newborn calves! The ideal colostrum (first milk) Brix level is 20% and above.It measures the Brix value of colostrum, which has a correlation with the immunoglobulin (IgG) value contained in colostrum. If the Brix value of the colostrum is over 20%, you can safely assume it is high-quality colostrum.

✳Correlation coefficients may vary depending on the species of animal.

| Specifications           |                          |
|--------------------------|--------------------------|
| Model                    | PAL-Colostrum            |
| Cat.No.                  | 3805                     |
| Scale                    | Brix                     |
| Range                    | Brix : 0.0 to 53.0% Brix |
| Accuracy                 | ±0.2 %                   |
| Temperature compensation | 10 to 100 ° C            |

| Options                                                                               |  |
|---------------------------------------------------------------------------------------|--|
| <div><div>· PAL-CASE : RE-39409</div><div>· PAL Silicone Cover : RE-39413</div></div> |  |



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· STRAP : RE-39410

Patent for Invention Registration No. ZL200310103015.2 (China)

Patent for Design Registration No. ZL03303431.1 (China), 089244 (Taiwan)

Patent Granted in countries around the world.

This is for measuring the concentration of Isopropyl alcohol water solution by g/100g.

| Specifications           |                                   |
|--------------------------|-----------------------------------|
| Model                    | PAL-37S                           |
| Cat.No.                  | 4437                              |
| Scale                    | Isopropyl alcohol (g/100g)        |
| Range                    | Isopropyl alcohol : 0.0 to 60.0%  |
| Accuracy                 | ±0.6% upto 30% and ±1.6% upto 60% |
| Temperature compensation | 10 to 35° C                       |

### Options

- PAL-CASE : RE-39409
- PAL Silicone Cover : RE-39413
- STRAP : RE-39410

Patent for Invention Registration No. ZL200310103015.2 (China)

Patent for Design Registration No. ZL03303431.1 (China), 089244 (Taiwan)

Patent Granted in countries around the world.

This is for measuring the concentration of Isopropyl alcohol water solution by ml/100ml.

| Specifications           |                                  |
|--------------------------|----------------------------------|
| Model                    | PAL-131S                         |
| Cat.No.                  | 4530                             |
| Scale                    | Isopropyl alcohol (ml/100ml)     |
| Range                    | Isopropyl alcohol : 0.0 to 20.0% |
| Accuracy                 | ±0.6%                            |
| Temperature compensation | 10 to 35° C                      |



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Patent for Design Registration No. ZL03303431.1 (China), 089244 (Taiwan)

Patent Granted in countries around the world.

|                                |                                                                                        |
|--------------------------------|----------------------------------------------------------------------------------------|
| Sample Volume                  | 2 to 3 drops                                                                           |
| Measurement Time               | About 3 seconds                                                                        |
| Power Supply                   | 2 × AAA Batteries                                                                      |
| Battery Life                   | About 11,000 measurements (When using AAA Batteries. About 1,500 times for PAL-S only) |
| International Protection Class | IP65 Water resistant                                                                   |
| Dimensions & Weight            | 5.5 × 3.1 × 10.9cm 100g (main unit omly)                                               |