



NEWS	Press Room	Products	User Testimonials	Company	Contact Us	Service Center	Catalog Download	Bits of Knowledge
		Search by Product		Search by Use (Foods)		Search by Use (Industry)	New Products	
		Accessories		Products Registration		Quick Manual		

Digital Hand-held "Pocket" Refractometer PAL

Everyone is talking about the new "Pocket" as featured on recent TV programs and Magazines.

The PAL is a completely new and redesigned digital hand-held instrument that will change the traditional conceptions of refractometers. The PAL's surprisingly compact size allows you to easily carry it around and use it indoors as well as outdoors.

The size, design, function and performance will surprise you. The PAL will expand your range of measuring possibilities.



Features



PAL has received several awards !



- 2003 "Good Design Award"
- 2004 "Venture Technology Awards (Excellence)"
- 2005 "Technology for Food Industry Award"

	Light & Compact, 100g. Ergonomically designed for one-handed operation.		Sample size 2-3drops.
	The speedy performance of the PAL is amazing. Simply put a drop of a sample on the prism surface and press the START key. The Brix value (sugar content / concentration) will be displayed in just 3 seconds.		High temperature sample can be measured.
	Protection class of the PAL is IP65. You can rinse off the sample by running water on the sample stage. The design allows the user to easily wipe off the sample.		Revolutionary new feature ELI* *External Light Interference (ELI) - Patent Pending.
	The sample stage is designed to keep sample solutions from spilling out.		Calibration with water
	The Automatic Temperature Compensation function of the PAL enables you to take measurement readings regardless of the ambient temperature.		Convenient Storage



Pocket Palm Perform

Digital Hand-held "Pocket" Refractometer

PAL-1

A new ergonomic design for comfort and ease of use

Wide measurement range (Brix 0.0 to 53.0%)

Made in Japan

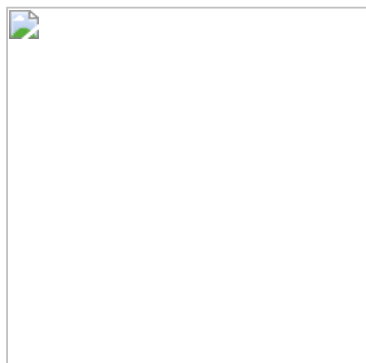


[Product Comparison](#)

[How to Measure](#)
How To measure

[Product Q & A](#)
Question And Answer

[Inquiry](#)
Inquiry



Quantity [Request Quotation](#)

[Catalog Download](#) 2.16MB

about the icons

With its wide measurement range (Brix 0.0 to 53.0%) 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.

Specifications

Model	PAL-1
Cat.No.	3810
Scale	Brix Temperature
Measurement Range	Brix : 0.0 to 53.0 % Temperature : 10.0 to 100°C
Resolution	Brix : 0.1% Temperature : 0.1° C
Measurement Accuracy	Brix : ±0.2 % Temperature : ±1° C
Temperature compensation range	10 to 100 ° C (Automatic Temperature Compensation)
Ambient Temperature	10 to 40° C
Sample Volume	0.3mL
Measurement Time	3 seconds
Power Supply	2 x AAA alkaline batteries
Battery Life	Approx. 11,000 times measurement (when alkaline batteries are used)
International Protection Class	IP65 Dust-tight and Protected against wat
Dimensions & Weight	55(W)×31(D)×109(H)mm, 100g (Main Unit)

Options

- [MAGIC™ \(for PAL\)](#) : RE-39411
- [PAL-CASE](#) : RE-39409
- [PAL Silicone Cover](#) : RE-39413
- [STRAP](#) : RE-39410
- [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.

[▲ TOP](#)

Digital Hand-held "Pocket" Refractometer PAL-1 BLT/i



Wireless data logging with the PAL-1 is now available for iPhone users.

The PAL-1 BLT/i stores and transmits timestamp and Brix data to iPhones via Bluetooth and the free app, [ATAGO Logger](#) for iPhone.

Specifications

Model	PAL-1 BLT/i
Cat.No.	3810i
Scale	Brix Temperature
Measurement Range	Brix : 0.0~53.0% Temperature : 10.0~100° C
Output specification	Bluetooth Ver. 4.0 Communicative range : about 3 to 7m
Resolution	Brix : 0.1% Temperature : 0.1° C
Measurement Accuracy	Brix : ±0.2% Temperature : ±1° C
Temperature compensation range	10 to 100 ° C (Automatic Temperature Compensation)
Ambient Temperature	10 to 40° C
Sample Volume	At least 0.3mL
Measurement Time	3 seconds
Power Supply	2 × AAA Batteries
Battery Life	Approx. 10,000 times measurement (when alkaline batteries are used)
International Protection Class	IP65 Water resistant

[Product Comparison](#)

[How to Measure](#)
How To measure

[Product Q & A](#)
Question And Answer

Quantity [Request Quotation](#)

Dimensions & Weight	55(W)×31(D)×109(H)mm, 100g (Main Unit only)
---------------------	---

Options

- [MAGIC™ \(for PAL\)](#) : RE-39411
- [STRAP](#) : RE-39410
- [PAL-CASE](#) : RE-39409
- [PAL Silicone Cover](#) : RE-39413
- [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.

[▲ TOP](#)

Digital Hand-held "Pocket" Refractometer PAL-1 BLT/A+W



[Enlargement](#)

about the icons

The ever-popular PAL-1 is now available with wireless data logging! The PAL-1 BLT/A+W stores up to 100 sets of timestamp and Brix and transmits the data, not only to PC, but also to smartphones and tablets (Android only*) via Bluetooth. Import data directly into Excel with the included data transmission software, ATAGO Logger. Download the free app on your Android devices.

Specifications

Model	PAL-1 BLT/A+W
Cat.No.	3810A
Scale	Brix Temperature
Measurement Range	Brix : 0.0 to 53.0 % (Automatic Temperature Compensation) Temperature : 10.0 to 100° C
Output specification	Bluetooth Ver. 2.1+EDR Communicative range : about 3 to 7m
Resolution	Brix : 0.1% Temperature : 0.1° C
Measurement Accuracy	Brix : ±0.2 % Temperature : ±1° C
Temperature compensation range	10 to 100° C
Ambient Temperature	10 to 40° C
Sample Volume	0.3mL

[Product Comparison](#)

[How to Measure](#)
How To measure

[Product Q & A](#)
Question And Answer

Quantity [Request Quotation](#)

Measurement Time	3 seconds
Power Supply	2 x AAA Batteries
Battery Life	Approx. 10,000 times measurement (when alkaline batteries are used)
International Protection Class	IP65 Dust-tight and Protected against water jets.
Dimensions & Weight	55(W)×31(D)×109(H)mm, 100g (Main Unit only)

Options

- [MAGIC™ \(for PAL\)](#) : RE-39411
 - [PAL-CASE](#) : RE-39409
 - [STRAP](#) : RE-39410
 - [PAL Silicone Cover](#) : RE-39413
 - [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.

[▲ TOP](#)

Digital Hand-held "Pocket" Refractometer PAL-2



Enlargement

about the icons ▶



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.

When boiling jam or marmalade are measured, the PAL-2 gives steady measurement values as the measurement is repeated for a few times.

It is very useful since **"zero-setting"** (calibration) can be done with water.

The feature of PAL-1 are fully covered by NEW PAL-2.

Specifications

Model	PAL-2
Cat.No.	3820
Scale	Brix Temperature
Measurement Range	Brix : 45.0 to 93.0 % Temperature : 10.0 to 100° C
Resolution	Brix : 0.1% Temperature : 0.1° C
Measurement Accuracy	Brix : ±0.2 % Temperature : ±1° C

Product Comparison

How to Measure
How To measure

Product Q & A
Question And Answer

Quantity [Request Quotation](#)

PDF

Catalog

2.16MB

[Download](#)

Temperature compensation range	10 to 100° C (Automatic Temperature Compensation)
Ambient Temperature	10 to 40° C
Sample Volume	0.3mL
Measurement Time	3 seconds
Power Supply	2 x AAA alkaline batteries
Battery Life	Approx. 11,000 times measurement (when alkaline batteries are used)
International Protection Class	IP65 Dust-tight and Protected against water jets.
Dimensions & Weight	55(W)×31(D)×109(H)mm, 100g (Main Unit only)

Options

- [MAGIC™ \(for PAL\)](#) : RE-39411
 - [STRAP](#) : RE-39410
 - [PAL-CASE](#) : RE-39409
 - [PAL Silicone Cover](#) : RE-39413
 - [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.

[▲ TOP](#)

Digital Hand-held "Pocket" Refractometer PAL-3



Enlargement

[about the icons](#) ▶



Designed with a full Range (Brix 0.0 to 93.0%), the PAL-3 works perfectly for measuring almost any sample. The Full Range PAL-3 has the same great features as the PAL-1 and PAL-2.

Specifications

Model	PAL-3
Cat.No.	3830
Scale	Brix Temperature
Measurement Range	Brix : 0.0 to 93.0 % Temperature : 10.0 to 100° C
Resolution	Brix : 0.1% Temperature : 0.1° C
Measurement Accuracy	Brix : ±0.1 % Temperature : ±1° C

Product Comparison

How to Measure
How To measure

Product Q & A
Question And Answer

Quantity [Request Quotation](#)

	2.16MB
---	--------

Temperature compensation range	10 to 100 ° C (Automatic Temperature Compensation)
Ambient Temperature	10 to 40° C
Sample Volume	0.3mL
Measurement Time	3 seconds
Power Supply	2 x AAA alkaline batteries
Battery Life	Approx. 11,000 times measurement (when alkaline batteries are used)
International Protection Class	IP65 Dust-tight and Protected against water jets.
Dimensions & Weight	55(W)×31(D)×109(H)mm, 100g (Main Unit only)

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.

▲ TOP

Digital Hand-held "Pocket" Refractometer PAL-α



 Enlargement

 **Product Comparison**

 **How to Measure**
How To measure

about the icons 

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
Scale	Brix Temperature
Measurement Range	Brix : 0.0 to 85.0 % Temperature : 10.0 to 100° C



Quantity Request Quotation



Resolution	Brix : 0.1% Temperature : 0.1° C
Measurement Accuracy	Brix : ±0.2 % Temperature : ±1° C
Temperature compensation range	10 to 100 ° C (Automatic Temperature Compensation)
Ambient Temperature	10 to 40° C
Sample Volume	0.3mL
Measurement Time	3 seconds
Power Supply	2 x AAA Batteries
Battery Life	Approx. 11,000 times measurement (when alkaline batteries are used)
International Protection Class	IP65 Dust-tight and Protected against water jets.
Dimensions & Weight	55(W)×31(D)×109(H)mm, 100g (Main Unit only)

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.

[▲ TOP](#)

Digital Hand-held "Pocket" Refractometer PAL-S



Enlargement



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
Scale	Brix Temperature



Quantity Request Quotation



517KB

Measurement Range	Brix : 0.0 to 93.0 % Temperature : 10.0 to 100° C
Resolution	Brix : 0.1% Temperature : 0.1° C
Measurement Accuracy	Brix : ±0.2 % Temperature : ±1° C
Temperature compensation range	10 to 100° C (Automatic Temperature Compensation)
Ambient Temperature	10 to 40° C
Sample Volume	0.3mL
Measurement Time	60 seconds of continuous measurement after 5 to 15 seconds of analysis
Power Supply	2 x AAA Batteries
Battery Life	Approx. 1,500 times measurements (when an alkaline batteries are used.)
International Protection Class	IP65 Dust-tight and Protected against water jets.
Dimensions & Weight	55(W) x 31(D) x 109(H)mm, 100g (Main Unit only)

Options

- [MAGIC™ \(for PAL\)](#) : RE-39411
- [PAL-CASE](#) : RE-39409
- [PAL Silicone Cover](#) : RE-39413
- [SUPER EXTRACTOR](#) : RE-29401
- [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.

▲ TOP

Digital Hand-held "Pocket" Refractometer PAL-LOOP



Released on ATAGO's 70th Anniversary, the PAL-LOOP is a s
 Continuous Measurement feature to give you extra method tai
 select either the new continuous and conventional single meas
 measurement range of PAL-LOOP is Brix 0.0 - 85.0%, it can l
 samples.

any

Specifications



Product Comparison

How to Measure
How To measure

Product Q & A
Question And Answer

Quantity **Request Quotation**

Catalog Download 250KB

Model	PAL-LOOP
Cat.No.	3842
Scale	Brix Temperature
Measurement mode	1. Regular (single measurement) 2. Continuous (measure and display repeatedly)
Measurement Range	Brix : 0.0 to 85.0 % Temperature : 10.0 to 100° C
Resolution	Brix : 0.1% Temperature : 0.1° C
Measurement Accuracy	Brix : ±0.2 % Temperature : ±1° C
Temperature compensation range	10 to 100 ° C (Automatic Temperature Compensation)
Ambient Temperature	10 to 40° C
Sample Volume	0.3mL or more
Measurement Time	3 seconds (Regular mode) 1 second (Continuous mode)
Power Supply	2 x AAA alkaline batteries
Battery Life	Approx. 11,000 times measurement (when alkaline batteries are used)
International Protection Class	IP65 Dust-tight and Protected against water jets.
Dimensions & Weight	55(W) x 31(D) x 109(H)mm, 100g (Main Unit only)

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.

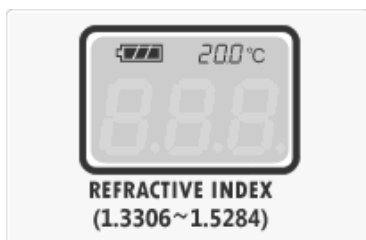
[TOP](#)

Digital Hand-held "Pocket" Refractometer PAL-RI



about the icons ▶





Quantity Request Quotation



The long-awaited "Pocket" digital and compact sized refractometer 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 like an electric newsboard. It is also equipped with all the features of the PAL series.

Specifications

Model	PAL-RI
Cat.No.	3850
Scale	Refractive Index Temperature °C
Measurement Range	Refractive Index : 1.3306 to 1.5284 Temperature 5 to 45° C
Resolution	Refractive Index : 0.0001 Temperature : 0.1° C
Measurement Accuracy	Refractive Index : ±0.0003 (water at 20° C) Temperature : ±1° C
Ambient Temperature	10 to 40° C
Measurement Temperature	5 to 45° C
Sample Volume	0.3mL
Measurement Time	3 seconds
Power Supply	2 x AAA Batteries
Battery Life	Approx. 11,000 times measurement (when alkaline batteries are used)
International Protection Class	IP65 Dust-tight and Protected against water jets.
Dimensions & Weight	55(W) x 31(D) x 109(H)mm, 100g (Main Unit only)

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.

▲ TOP

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

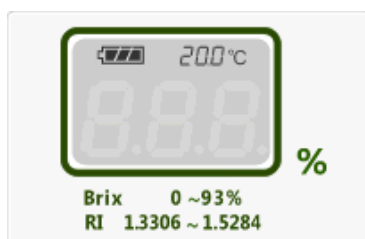


about the icons





Enlargement



Quantity [Request Quotation](#)



PAL-BX/RI has dual scales of Brix full range : Brix 0.0 to 93.0%, high measurement accuracy : Brix $\pm 0.1\%$ 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 Refractive Index Temperature
Measurement Range	Brix : 0.0 to 93.0 % Refractive Index : 1.3306 to 1.5284 Temperature : 5 to 45° C
Resolution	Brix : 0.1 % Refractive Index : 0.0001 Temperature : 0.1° C
Measurement Accuracy	Brix : $\pm 0.1\%$ Refractive Index : ± 0.0003 (water at 20° C) Temperature : $\pm 1°$ C
Temperature compensation range	10 to 100° C (Brix only) (Automatic Temperature Compensation)
Ambient Temperature	10 to 40° C
Sample Volume	0.3 mL
Measurement Time	3 seconds
Power Supply	2 x AAA Batteries
Battery Life	Approx. 11,000 times measurement (when alkaline batteries are used)
International Protection Class	IP65 Dust-tight and Protected against water jets.
Dimensions & Weight	55(W)×31(D)×109(H)mm, 100g (Main Unit only)

Options

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

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

