Digital Hand-Held "Pocket" Refractometer PAL Special Scales

Sodium bromide

Sodium tartrate

KMW (or Babo)

Baume Oe (Ger) / Brix Oe (Oechsle) / Brix

Magnesium sulfate

Sodium bicarbonate

Potassium oxalate

Potassium dichromate

Potassium phosphate Sodium tungstate















Sov m	ilk Bittorn	(Magnasium ablarida)	١	D41 540	0 "	
Cat. No. 4427 4443		(Magnesium chloride) Scale Soy milk Bittern (Magnesium chloride)	4451 4455 4464 4465	PAL-51S PAL-55S PAL-64S PAL-65S	Sodium bro Magnesium Sodium bic Sodium tar	
Cookir	ng		4466 4468	PAL-66S PAL-68S	Potassium (Potassium (Potassium) Sodium tun	
Cat. No. 4496	Model name PAL-96S	Scale Chinese noodle soup	4470 4472	PAL-70S PAL-72S		
4508	PAL-Pâtissier	Baume of Kansui Brix / Baume	Wine			
4498	PAL-Patissier	Condiment	Cat. No.	Model name	Scale	
Honey			4479 4480	PAL-79S PAL-80S	T.A. 1990 T.A. 1971 KMW (or Ba Baume	
Cat. No. 4422	Model name PAL-22S	Scale Honey moisture	4483 4484 4486	PAL-83S PAL-84S PAL-86S		
Salinit	у		4487	PAL-87S	Oe (Ger) / Oe (Oechs	
Cat. No. 4403	Model name PAL-03S	Scale	Clinical inspection, Test			
4506 4404 4405	PAL-03S PAL-106S PAL-04S PAL-05S	Sodium chloride (g/100ml) Sodium chloride (g/100ml) Sodium chloride (S.G.) Sodium chloride (Baume)	Cat. No. 4410 4442 4453	Model name PAL-10S PAL-42S PAL-53S	Scale Urine (S.G. Cesium chl	
Sea wa	ater		4453	PAL-53S PAL-54S	Copper sulfa Copper sulfa	
Cat. No. 4406			Steriliz	zation, Blea	ching	
4406 4407 4408	PAL-06S PAL-07S PAL-08S	Seawater (Concentration) Seawater (S.G.) Seawater (Baume)	Cat. No. 4439	Model name PAL-39S	Scale Hydrogen p	

Citric acid

Scale

Dextran

Mannitol

Formic acid

Phosphoric acid

Glycerin (High concentration)

Acetic acid Phosphoric acid Sodium bicarbonate

Sodium tartrate

Potassium phosphate

Food additives. Ingredients

PAL-29S

PAL -325

PAL-64S

PAL-65S

PAL-70S

PAL-12S

PAI -15S

PAI -17S

PAI -19S

PAL-20S **Alcohol liquid**

PAI -34S

PAL-36S

PAI -12S

PAI -23S

PAL-24S

PAL-25S

PAL-26S

PAL-31S

PAL-32S

Model name

Pharmaceutical reagents Model name Scale

Model name

PAL-30S

4429

4430

4432

4464

4465 4470

4412

4415

4417

4419

4420

Cat. No.

4434

4436

4437 4485

4423

4425

4426

4431 4432

Sugars Cat. No.

Cat. No. 4410 4442 4453 4454	Model name PAL-10S PAL-42S PAL-53S PAL-54S	Scale Urine (S.G.) Cesium chloride Copper sulfate (Concentration) Copper sulfate (S.G.)	
Sterilization, Bleaching			
Cat. No. 4439	Model name PAL-39S	Scale Hydrogen peroxide	
Alkalin	e liquid		
Cat. No.	Model name	Scale	

	Model name PAL-40S	
Artifici	al leather,	Fabric
	Model name PAL-38S	
Paste		
	Model name PAL-21S	

Dextran Fructose	Snow-melting agent			
Glucose High Fructose Corn Syrup HFCS-42 High Fructose Corn Syrup HFCS-55	Cat. No. 4403	Model name PAL-03S	Scale Snow-melting agent (Sodium chloride)	
Inverted suger Lactose	4441	PAL-41S	Snow-melting agent (Calcium chloride)	
Maltose	4443	PAL-43S	Snow-melting agent (Magnesium chloride)	
Scale	Coolar	nt (Double	scale)	

Ethyl alcohol	Cat. No.	Model name	Scale
Methyl alcohol	4488	PAL-88S	Propylene glycol
Isopropyl alcohol			Freezing point of Propylene glycol (°C)
Polyvinyl alcohol	4489	PAL-89S	Propylene glycol
roogento			Freezing point of Propylene glycol (°F)
reagents reason to the contract of the contrac	4491	PAL-91S	Ethylene glycol
Scale			Freezing point of Ethylene glycol (°C)
Dextran	4492	PAL-92S	Ethylene glycol
Creatine			Freezing point of Ethylene glycol (°F)
Glycerin (Low concentration)	Chami		

Chemical products				
Cat. No.	Model name	Scale		
4423	PAL-23S	Glycerin (Low concentration)		
4424	PAL-24S	Glycerin (High concentration)		
1130	DVI 306	Acatic acid		

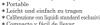
4447 4448 4449 4450 4451 4452 4453 4454 4455 4456 4457 4458 4459 4461 4462 4463 4464 4467 4468 4469 4470	PAL-46S PAL-47S PAL-48S PAL-49S PAL-50S PAL-50S PAL-52S PAL-53S PAL-55S PAL-55S PAL-56S PAL-57S PAL-58S PAL-60S PAL-60S PAL-63S PAL-63S PAL-64S PAL-64S PAL-67S PAL-68S PAL-69S PAL-69S PAL-69S PAL-69S PAL-69S PAL-60S PAL-60S	Formic acid Phosphoric acid Lithium chloride Barium chloride Barium chloride Cobalt chloride Ferric chloride Strontium chloride Potassium chloride Potassium bromide Sodium bromide Potassium iodide Copper sulfate (Concentration) Copper sulfate (S.G.) Magnesium sulfate Potassium sulfate Nickel sulfate Sodium nitrate Zinc sulfate Silver nitrate Sodium carbonate Sodium carbonate Potassium chromate Potassium chromate Potassium dichromate Sodium thiosulfate Potassium dichromate Sodium thiosulfate Potassium plosphate Sodium molyhdate
	PAL-71S PAL-72S	Sodium molybdate Sodium tungstate
Cuttin	a oil	

	Cutting	g oil	
	Cat. No. 4502	Model name PAL-102S	Scale Cutting
H	4502	PAL-1025	Cuttir

EXPLANATION OF ICONS

















All ATAGO refractometers are designed and manufactured in Japan.





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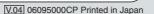
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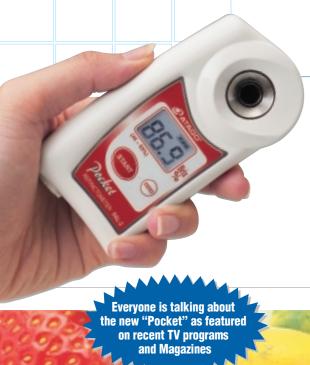
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* Specifications and appearance are subject to change without notice.







"The PAL sets the stage for the world of refractometry in the 21st century."

A new ergonomic design for comfort and ease of use!

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

PAL-2

PAL-1







Brix 0.0~53.0% Brix 45.0~93.0%

Certification

In accordance with ISO Quality Management Systems, ATAGO can calibrate and certify your Digital Hand-Held "Pocket" Refractometer. The following documents will be issued (for a service fee):

- 1. Calibration Certificate
- 2. Traceability System Diagram
- 3. Traceability Certificate



The next generation of Digital Refractometers

Prism

Made of highly durable

optical glass to prevent

Strap Holder

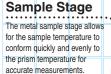
Suitable for wrist

straps or lanyards

Convenient storage case

Names and Functions of Components

The PAL can be operated with one hand.
Acutual Size

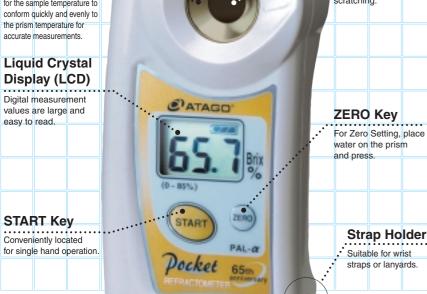


Liquid Crystal Display (LCD)

values are large and easy to read.

START Key

for single hand operation



* External Light Interference (ELI) - Patent Pending
When intense light penetrates the prism of a digital refractometer, the light waves interfere with the sensor resulting in inaccurate readings. The PAL series is equipped with ELI technology, which will display the warning message "nnn" if the ambient light is too intense. If the warning message is displayed, simply turn away from the light source or shade the prism with your hand and press the START key

Main Features



Always clean and shiny - can be cleaned under running water



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

Measurement Method



the prism surface.





Brix(%) value displayed

in 3 seconds!

Optional

Sucrose Solutions (for Brix confirmation) Part No. Part Name 10% Sucrose (±0.03%) RE-110010 RE-110030 30% Sucrose (±0.03%) RE-110050 50% Sucrose (±0.05%)

Accessories - For easy carrying -

●PAL-case RE-39409 ●PAL-strap RE-39410





Application

		PAL-1 Low & Intermediate Brix		PAL-3 (PAL-α) Full Range
At fruit and vegetable farming	orchards	0		0
At beverage factories	fruit juices, coffee, soft drinks, etc.	0		0
	juice concentrates, etc.		0	0
At food factories	soy sauce, various sauces, etc.	0		0
	syrups, jellies , etc.	0	0	0
	seasoning, soups	0		0
	jams, marmalade, honey, etc.		0	0
	condensed milk, etc.		0	0
At fruit and vegetable markets	or supermarkets	0		0
At restaurants or food shops		0		0
In Junior High, High Schools,	or Universities as a course material	0	0	0

Specifications

		opodinications					
		Model	PAL-1	PAL-2	PAL-3	PAL-α	
•		Cat. No.	3810	3820	3830	3840	
		Measurement Range	Brix 0.0~ 53.0%	Brix 45.0∼ 93.0%	Brix 0.0~ 93.0%	Brix 0.0~ 85.0%	
		Resolution		Brix	0.1%		
		Accuracy	Brix ∃	±0.2%	Brix ±0.1%	Brix ±0.2%	
		Repeatability	10~75°C Automatic Temperature Compen				
		Measurement Temperature				sured under specific	
Ambient Temperature			10~40℃				
		Power Supply	AAA alkaline battery $ imes 2$				
		Battery Life	Approx.11,000 measurements (When using new alkaline batteries)				
		International Protection Class	IP65 Water Resistant				
		Dimensions	55(W)×31(D)×109(H)mm,100g (main unit o				















