Digital Hand-Held "Pocket" Refractometer PAL Special Scales Select the scale for your application and sample. Please contact us for more details.













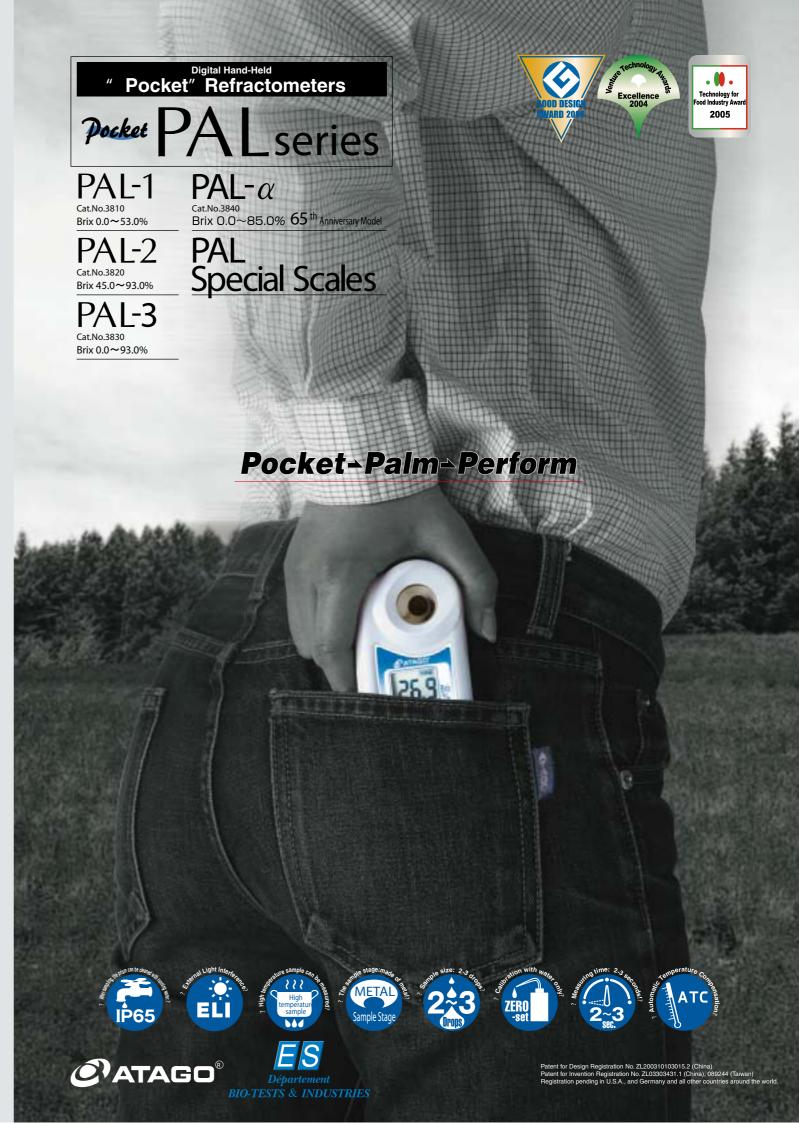


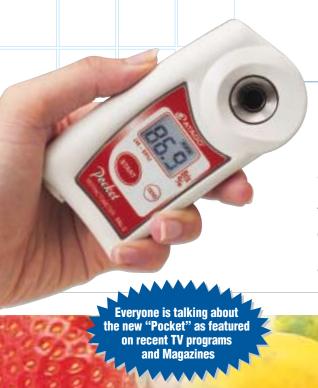
Soy milk, Bittern (Cat. No. Model name 4427 PAL-27S 4443 PAL-43S		(Magnesium chloride) Scale Soy milk Bittern (Magnesium chloride)	4451 4455 4464 4465	PAL-51S PAL-55S PAL-64S PAL-65S	Sodium bromide Magnesium sulfate Sodium bicarbonate Sodium tartrate		
Cookir	ng		4466 4468	PAL-66S PAL-68S	Potassium oxalate Potassium dichroma		
Cat. No. Model name 4496 PAL-96S 4508 PAL-Pâtissier		Chinese noodle soup Baume of Kansui	4470 4472	PAL-70S PAL-72S	Potassium phosphat Sodium tungstate		
			Wine				
4498	PAL-98S	Condiment	Cat. No.	Model name	Scale		
Honey			4479 4480	PAL-79S PAL-80S	T.A. 1990 T.A. 1971		
Cat. No. 4422	Model name PAL-22S	Scale Honey moisture	4483 4484 4486	PAL-83S PAL-84S PAL-86S	KMW (or Babo) Baume Oe (Ger) / Brix		
Salinity			4487	PAL-87S	Oe (Oechsle) / Brix		
Cat. No.	Model name	Scale	Clinical inspection, Test				
4403 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 chloride		
Sea water			4453	PAL-53S	Copper sulfate (Conc Copper sulfate (S.G.		
Cat. No. 4406	Model name PAL-06S	Scale Seawater (Concentration)	Sterilization, Bleaching				
4407 4408	PAL-06S PAL-07S PAL-08S	Seawater (Concentration) Seawater (S.G.) Seawater (Baume)	Cat. No. 4439	Model name PAL-39S	Scale Hydrogen peroxide		
Food additives, Ingredients				Alkaline liquid			
Cat. No. 4429	Model name PAL-29S PAL-30S PAL-32S PAL-64S PAL-65S	Scale Citric acid Acetic acid Phosphoric acid	Cat. No. 4440	Model name PAL-40S	Scale Sodium hydroxide		
4430 4432			Artificial leather, Fabric				
4464 4465		Sodium bicarbonate Sodium tartrate	Cat. No. 4438	Model name PAL-38S	Scale Dimethylformamide		
4470	PAL-70S	Potassium phosphate	Paste				
Sugars	5		Cat No.	Model name	Scale		

Cat. No. 4427 4443 Cookir Cat. No. 4496 4508 4498 Honey	Model name PAL-27S PAL-43S 1g Model name PAL-96S PAL-Pâtissier PAL-98S	(Magnesium chloride) Scale Soy milk Bittern (Magnesium chloride) Scale Chinese noodle soup Baume of Kansui Brix / Baume Condiment	4451 4455 4464 4465 4466 4468 4470 4472 Wine Cat. No. 4479 4480 4483	PAL-51S PAL-55S PAL-64S PAL-66S PAL-66S PAL-70S PAL-72S Model name PAL-79S PAL-80S PAL-80S PAL-80S	Sodium bromide Magnesium sulfate Sodium bicarbonate Sodium tartrate Potassium oxalate Potassium dichromate Potassium phosphate Sodium tungstate Scale T.A. 1990 T.A. 1971 KMW (or Babo)	4431 4432 4444 4445 4446 4447 4448 4449 4450 4451 4452 4453 4454	PAL-31S PAL-32S PAL-44S PAL-45S PAL-46S PAL-47S PAL-48S PAL-50S PAL-51S PAL-51S PAL-52S PAL-53S PAL-55S	Formic acid Phosphoric acid Lithium 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	
Cat. No. 4422	PAL-22S	Model name Scale PAL-22S Honey moisture		PAL-84S PAL-86S	Baume Oe (Ger) / Brix Oe (Oechsle) / Brix	4456 4457	PAL-56S PAL-57S	Potassium sulfate Nickel sulfate	
Salinit	Salinity		4486 4487			4458	PAL-58S	Sodium nitrate	
Cat. No. 4403 4506 4404 4405 Sea wa	Model name PAL-03S PAL-106S PAL-04S PAL-05S	Scale Sodium chloride (g/100ml) Sodium chloride (g/100ml) Sodium chloride (S.G.) Sodium chloride (Baume)	Clinica 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.)	4459 4460 4461 4462 4463 4464 4467	PAL-59S PAL-60S PAL-61S PAL-62S PAL-63S PAL-64S PAL-67S	Zinc sulfate Silver nitrate Sodium nitrate Potassium carbonate Sodium carbonate Sodium bicarbonate Potassium chromate	
	Cat. No. Model name Scale			zation, Blea		4468 4469	PAL-68S PAL-69S	Potassium dichromate Sodium thiosulfate	
4406 4407 4408	PAL-06S PAL-07S PAL-08S	Seawater (Concentration) Seawater (S.G.) Seawater (Baume)		Model name PAL-39S	•	4470 4471 4472	PAL-70S PAL-71S PAL-72S	Potassium phosphate Sodium molybdate Sodium tungstate	
Food additives, Ingredients			Alkaline liquid			Cutting oil			
Cat. No. 4429 4430	Model name PAL-29S PAL-30S	Scale Citric acid Acetic acid	4440	Model name PAL-40S	Scale Sodium hydroxide	Cat. No. 4502	•	Scale Cutting oil	
4432	PAL-32S	Phosphoric acid	Artificial leather, Fabric Cat. No. Model name Scale						
4464 PAL-64S Sodium bicarbonate 4465 PAL-65S Sodium tartrate 4470 PAL-70S Potassium phosphate		4438	PAL-38S	Scale Dimethylformamide	E	XPLANA	TION OF ICONS		
Sugars		Paste	Madelmana	Caala		* Com	pact and easy to carry		
Cat. No.	Model name	Scale	Cat. No. Model name Scale 4421 PAL-21S Dextrin			* Leic	* Portable * Leicht und einfach zu tragen * Calibrazione con liquidi standard esclusivi * Compacto y făcil de llevar * 班巧島改得管		
4412 4414	PAL-12S PAL-14S	Dextran Fructose	Snow-melting agent						* Com
4415 PAL-15S Gluc 4416 PAL-16S High 4417 PAL-17S High 4418 PAL-18S Inve		Glucose High Fructose Corn Syrup HFCS-42 High Fructose Corn Syrup HFCS-55 Inverted suger	Cat. No. 4403	Model name PAL-03S PAL-41S	Snow-melting agent (Sodium chloride) Snow-melting agent		*Calil *Kalil *Calil	oration with water oration 1 point* sur eau distillée brierung mit Wasser orazione con acqua oración con agua	
4419 4420	PAL-19S PAL-20S	Lactose Maltose	4443	PAL-43S	(Calcium chloride) Snow-melting agent		* Batt	ery operated	
Alcoho	ol liquid				(Magnesium chloride)] [* Batt	nentation par pile eriebetrieben nentazione a batteria	
Cat. No. Model name Scale		Coolant (Double scale)				* Fun	nentazione a batteria cionamiento con batería 電池操作		
4434 4436 4437 4485	PAL-34S PAL-36S PAL-37S PAL-85S	Ethyl alcohol Methyl alcohol Isopropyl alcohol Polyvinyl alcohol	Cat. No. 4488 4489	Model name PAL-88S PAL-89S	Propylene glycol Freezing point of Propylene glycol (°C) Propylene glycol		* DEPH SERVETIF **Digital display **Particular and the server of the s		
Pharmaceutical reagents		4491	PAL-91S	Freezing point of Propylene glycol (°F) Ethylene glycol		*數字	順示		
4412 4413 4423	Cat. No. Model name Scale 4412 PAL-12S Dextran 4413 PAL-13S Creatine		4492	PAL-92S	Freezing point of Ethylene glycol (°C) Ethylene glycol Freezing point of Ethylene glycol (°F)		20 *Comp *Auto *Comp *ATC *Comp	matic Temperature Compensation pensation automatique de température matische Temperaturkompensation pensazione automatica della temperatura pensación de automática de temperatura 選度補償	
		Mannitol Formic acid	Cat. No. 4423 4424 4430	-			*Rési *Hitz *Resi *Mue	n temperature samples stant à la chaleur ebestaendig stente al calore stras De Alta Temperatura 接盖用	

(ES) Equipements Scientifiques SA Département Bio-Tests & Industries 127 rue de Buzenval BP 26 - 92380 Garches Tél. 01 47 95 99 90 - Fax. 01 47 01 16 22 E-mail: bio@es-france.com - Site Web: www.es-france.com







"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-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

Names and Functions of Components

The PAL can be operated with one hand.
Acutual Size

Sample Stage The metal sample stage allows for the sample temperature to conform quickly and evenly to the prism temperature for

Liquid Crystal Display (LCD)

Digital measurement values are large and easy to read.

START Key

for single hand operation



Prism

Made of highly durable

optical glass to prevent

* 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



Apply 2-3 drops onto 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-2 High 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
• • •	or Universities as a course material	0	0	0

Specifications

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	Brix ±0.1% 10~75°C Automatic Temperature Compensation (Boiled samples over 100°C can be measured under specific conditions.Please contact ATAGO for further details.)				
Measurement Temperature					
Ambient Temperature	10~40℃				
Power Supply	AAA alkaline battery ×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 only)				







Convenient storage case









