

Digital Refractometer (Optical Refraction Method) Palette Series

# Palette



Soluble  
Solid%

Control of  
Dilution  
ratio%

Water  
content %

Blend  
ratio of two  
liquids %

**The Palette α - high functionality in a compact size body**

- $\pm 0.1\%$  (Brix) accuracy.
- Programmable user scales enable control of various liquid concentrations.

**PR-32α** Cat.No.3405

**PR-101α** Cat.No.3442

**PR-201α** Cat.No.3452

**PR-301α** Cat.No.3462

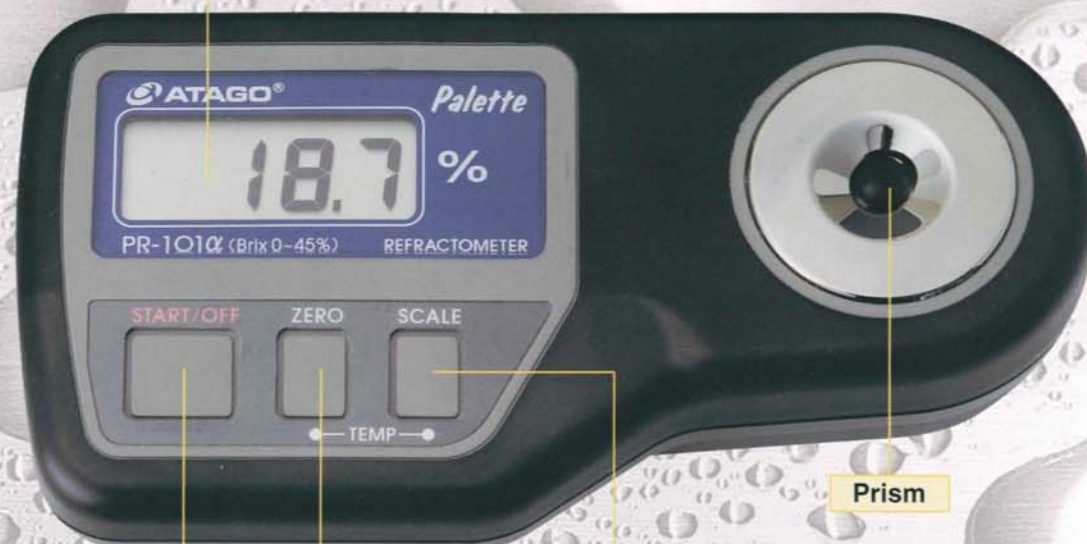


## The continuing evolution of the Palette — The Debut of the Palette $\alpha$

The Palette  $\alpha$  series is the ultimate compact instrument which is the result of years of proven reliable performance, ease of operation and the functionality of design.

### Names of Components

Liquid Crystal Display (LCD)



Prism

ZERO Setting Switch

START/OFF Switch

SCALE Switch

### Main Applications

#### 1 Control of dilution ratio (multiples in %)

When water soluble cutting oils, aqueous cleaning agents, surfactants, liquid chemicals, etc. are diluted for use, their dilution ratio (multiples in %) can be managed by the Palette  $\alpha$  series.

#### 2 Control of water content (%)

The water content in certain kinds of metal working oils, liquid cleansers, and liquid medicine, can evaporate while being used. To maintain the level of highest efficiency for the liquid, water needs to be replenished for optimal efficiency. In such cases, change in the water content can be managed by the Palette  $\alpha$  series.

#### 3 Control the blend ratio of two liquids (%)

When a liquid additive is mixed with a primary liquid (for example, when flux or working oil is dissolved into a liquid cleanser), the blend ratio (%) of the foreign liquid can be managed by the Palette  $\alpha$  series.

### Examples of Measurement

**Metalworking Oils**  
Water soluble cutting oils, lubricating oils, working oils, rolling oils, quenching oils, stretching oils, mold lubricant (except insoluble agents), etc.

### Detergents

Aqueous cleaning agents, quasi-aqueous detergents, hydrocarbon detergents, petrochemical detergents, alkaline detergents, isopropyl alcohol (IPA), etc.

### Other liquids

Alkaline solutions, ammonia solutions, surfactants, caustic sodas, hydrogen peroxide water, glycerin, caulking agents, sealants, sealing agents, liquid resin, fire extinguishing solutions, salt water, adhesive agents, gelatin, protein water, DMF, freeze protective agents, thermal catalytic solutions (for freezer, solar apparatus), adhesives (all kinds), etching reagents, anti-freezing agents, flux, corrosion protective agents, formalin, water glass, plating agents, lining agents, etc.

Four models of the Palette  $\alpha$  are available for your different measurement samples.



PR-32 $\alpha$  Cat.No.3405



PR-101 $\alpha$  Cat.No.3442



PR-201 $\alpha$  Cat.No.3452



PR-301 $\alpha$  Cat.No.3462



\*Calibration with the Standard Liquid LG.

### Main Features

#### Accuracy improved to $\pm 0.1\%$

The conventional measurement accuracy,  $\pm 0.2\%$ , is increased to  $\pm 0.1\%$ . The highest accuracy available in a compact model.

#### User scale feature

The user scale function has been added. Concentrations of various samples can be displayed by setting up a coefficient. Three separate user scales can be entered.

#### Convenient temperature display

A temperature display function has been added. Temperature is displayed by pressing a switch.

#### External-light-Interference (E.L.I.)\*

Conventionally, digital optical instruments have the potential to display incorrect measurement values if sampling is performed near a window or outdoors where lighting may be too intense. The new E.L.I. technology provides security under these conditions to ensure accurate measurements.

#### Two-year warranty

The warranty term was one year, but it extended to two years for Palette  $\alpha$  under some conditions: Ask ATAGO for detailed terms and conditions.

#### Automatic Temperature Compensation (ATC) function

With ATC, there is no need to worry about the measurement temperature.

#### Large, easy to read display

The large-sized liquid crystal panel makes it easy to read the measured result.

### Accuracy assured!!

The Palette  $\alpha$  is manufactured to ISO 9001 standards with the highest quality materials to ensure that the sample liquids such as water-soluble cutting oils, washing liquids, industrial liquids and various chemicals, will be measured accurately.

#### \* External Light Interference (E.L.I.) - Patent Pending

When intense light penetrates the prism of a digital refractometer, the light waves may interfere with the sensor resulting in inaccurate readings.

To ensure accurate measurement results each time, the Palette  $\alpha$  is programmed with the E.L.I. function to display the warning message "err" when intense direct light is detected. Forming a habit of shading the sample stage with your hand and re-pressing the START/OFF Switch (when the warning message from the E.L.I. function is displayed) will ensure accurate measurement results each time.

### Measurement Method

Sample size is Just  
**1 Drop!**

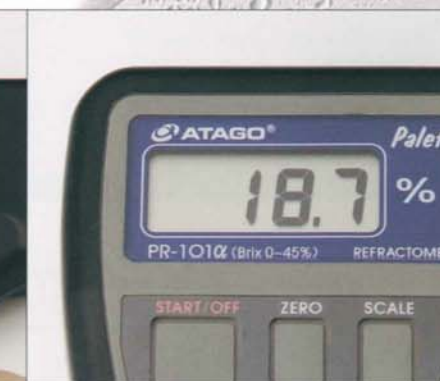
Measurement time is Just  
**3 seconds!**



1 Apply 1 drop of sample solution onto the prism surface.



2 Press the START/OFF Switch.



3 Brix (%) value displayed in 3 seconds!

#### About displayed values

This instrument measures the refractive index of liquids and converts the measured value into the sugar concentration value, "Brix." The relationship between the refractive index and Brix (%) concentration is based on the type of liquid. With the user function, direct concentration measurements can now be displayed by establishing and programming the respective coefficient into the user scale.



	PR-32α	PR-101α	PR-201α	PR-301α
Cat.No.	3405	3442	3452	3462
Measurement Range	Brix0.0~32.0%	Brix0.0~45.0%	Brix0.0~60.0%	Brix45.0~90.0%
Minimum Indication	Brix 0.1%			
Measurement Accuracy	Brix ±0.1% (5~40°C)		Brix ±0.1% (10~40°C)	Brix ±0.1% (10~30°C)
Measurement Temperature	5~40°C Automatic Temperature Compensation		10~40°C Automatic Temperature Compensation	
Ambient Temperature	5~40°C		10~40°C	
Sample Volume	0.1ml or more			
Measurement Time	3 seconds (approximately)			
Power Supply	006P dry battery (9V)			
International Protection Class	IP64			
Dimensions and Weight	17 (W) × 9 (D) × 4 (H) cm, 300g			

## Exclusive Scale Models

### Digital Refractometer for isopropyl alcohol **PR-60PA** Cat.No.3477

Measurement Range: Concentration of isopropyl alcohol 0.0 to 60.0% (W/W)

Measurement Accuracy:  $\pm 0.5\%$  (0 to 30%)

\*Concentration of about 40% $\cdots\pm 0.8\%$ , 60% $\cdots\pm 1.6\%$

### Digital Refractometer for ethyl alcohol **PET-109** Cat.No.3486

Measurement Range: Concentration of ethyl alcohol 0.0 to 45.0% (W/W)

Measurement Accuracy:  $\pm 0.5\%$  (0 to 30%)

\*Concentration of about 40% $\cdots\pm 0.8\%$ , 45% $\cdots\pm 1.2\%$

### Digital Refractometer for water solution of hydrogen peroxide **PR-50HO** Cat.No.3478

Measurement Range: Concentration of a water solution of hydrogen peroxide 0.0 to 50.0% (W/W)

Measurement Accuracy:  $\pm 0.5\%$

### Digital Refractometer for dimethyl formamide **PR-40DMF** Cat.No.3489

Measurement Range: Concentration of Dimethylformamide 0.0 to 40.0% (W/W)

Measurement Accuracy:  $\pm 0.3\%$

### Digital Refractometer for salinity **PR-100SA** Cat.No.3488

Measurement Range: Concentration of salinity 0 to 100‰

Measurement Accuracy:  $\pm 2\%$



**PR-60PA**

## Certification

In accordance with ISO Quality Management Systems, ATAGO can provide calibration and certification for any ATAGO refractometer. The following documents will be issued (for a service fee):

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



## EXPLANATION OF ICONS

Icons for functions, specifications and scales have been added to this catalog.



- \* Compact and easy to carry
- \* Portable
- \* Leicht und einfach zu tragen
- \* Calibrazione con liquidi standard esclusivi
- \* Compacto y fácil de llevar
- \* 輕巧易於攜帶



- \* Calibration with water
- \* Calibration 1 point\* sur eau distillée
- \* Kalibrierung mit Wasser
- \* Calibrazione con acqua
- \* Calibración con agua
- \* 用水歸零



- \* Calibration with exclusive standard liquid
- \* Calibration 1 point sur solution standard
- \* Kalibrierung mit speziellem Standard
- \* Calibration 1 point sur solution standard
- \* Calibración con patrones líquidos especiales
- \* 使用專屬標準液歸零



- \* Battery operated
- \* Alimentation par pile
- \* Batteriebetrieben
- \* Alimentazione a batteria
- \* Funcionamiento con batería
- \* 使用電池操作



- \* Digital display
- \* Affichage numérique
- \* Digital Anzeige
- \* Display digitale
- \* Pantalla digital
- \* 數字顯示



- \* Automatic temperature compensation
- \* Compensation automatique de température
- \* Automatische Temperaturkompensation
- \* Compensazione automatica della temperatura
- \* Compensación de automática de temperatura
- \* 自動溫度補償



- \* External Light Interference
- \* Interférence de la lumière externe
- \* Äußere Lichteinflüsse
- \* Interferenza della luce esterna
- \* Luz de Interferencia Externa
- \* 外部光線干涉

**CE HACCP G.M.P. G.L.P.**

ATAGO products are acknowledged by HACCP, G.M.P. and G.L.P. systems.

\* Specifications and design are subject to change without notice.

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