

NEW!

### For measuring refractive index!

#### Digital Refractometer PR-RI

Measurement Range: Refractive index 1.3306~1.4436  
Temperature 5~45°C

Minimum Indication: Refractive index 0.0001  
Temperature 1°C

Measurement Accuracy: Refractive index ± 0.0002 (water at 20°C)  
Temperature ± 1°C

Measurement Temperature: 5~45°C

Power Supply: 006P dry battery (9V)

Dimensions and Weight: 17(W) × 9(D) × 4(H) cm 300g (main unit only)



PR-RI

### 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: ±0.5% (0 to 30%)  
\*Concentration of about 40%~±0.8%, 60%~±1.6%



PR-60PA

#### 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: ±0.5% (0 to 30%)  
\*Concentration of about 40%~±0.8%, 45%~±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: ±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: ±0.3%

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

Measurement Range: Concentration of salinity 0 to 100‰

Measurement Accuracy: ±2‰

### 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



### Optional

#### Sucrose Solutions (for Brix confirmation)

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



### 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
- Calibrare 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
- Calibrare con acqua
- Calibración con agua
- 用水調零

- Calibration with exclusive standard liquid
- Calibration 1 point sur solution standard
- Kalibrierung mit speziellem Standard
- Calibrare 1 point sur solution standard
- Calibración con patrones líquidos especiales
- 使用專屬標準液調零

- 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

All ATAGO refractometers are designed and manufactured in Japan.

**HACCP GMP GLP**

ATAGO products comply with HACCP, GMP, and GLP system standards.

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

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### 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

- ±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 α

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

Sample size is Just **1 Drop!**  
Measurement time is Just **3 seconds!**

### Names of Components



### Main Applications

- 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 α series.
- 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 α series.
- 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 α 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.

**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.

Four models of the Palette α are available for your different measurement samples.



### Main Features

- Accuracy improved to ±0.1%** **NEW!**  
The conventional measurement accuracy, ±0.2%, is increased to ±0.1%. The highest accuracy available in a compact model.
- User scale feature** **NEW!**  
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** **NEW!**  
A temperature display function has been added. Temperature is displayed by pressing a switch.
- External-light-Interference (ELI)\*** **NEW!**  
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 ELI technology provides security under these conditions to ensure accurate measurements.
- Two-year warranty** **NEW!**  
ATAGO has extended the warranty term for the Palette α series to 2 years. For the terms and conditions, contact ATAGO.
- 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 α 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.

### Measurement Method



- Apply 1 drop of sample solution onto the prism surface.
- Press the START/OFF Switch.
- Brix (%) value displayed in 3 seconds!

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

**\* External Light Interference (ELI) - 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 α is programmed with the ELI function to display the warning message "nnn" 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 ELI function is displayed) will ensure accurate measurement results each time.

Measures concentration of solutions with a light beam