

# Facilitates measurement of solution density!

Soluble Solid %   Control of Dilution ratio %   Water content %   Blend ratio of two liquids %



# Palette

Digital Refractometers (Optical Refraction Method)

**PR-101**  
Cat. No. 3412

**PR-201**  
Cat. No. 3422

**PR-301**  
Cat. No. 3432

 **ATAGO**

# Measures concentration of solution with light beam

The Palette series are originally the refractometers developed to measure concentration of various solutions with application of refractive principle.



## Main Applications

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

When water soluble cutting oil, aqueous cleaning agent, surfactant, liquid medicine, liquid chemicals, etc. are watered down for use, their dilution ratios (multiples in %) can be managed by the Palette series refractometer.

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

Some kinds of working oil, liquid cleanser, and liquid medicine evaporate water content in use, and they need to replenish water at a certain level. In such cases, change in the water content can be managed by the Palette series refractometer.

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

When a foreign liquid dissolves into the specific liquid (in the case flux or working oil dissolves into liquid cleanser, for example), the blend ratio (percentage) of the foreign liquid can be managed by the Palette series refractometer.



Three types of Palette are prepared

# Palette

## Examples of Measurement

### Metalworking Oil

Water soluble cutting oil, lubricating oil, working oil, rolling oil, quenching oil, stretching oil, mold lubricant(except insoluble agents), etc.

### Detergents

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

### Other liquids

Alkaline solution, ammonia solution, surfactant, caustic soda, hydrogen peroxide water, glycerin, caulking agent, sealant, sealing agent, liquid resin, fire extinguishing solution, salt water, adhesive agent, gelatin, protein water, DMF, freeze protective agent, thermal catalytic solution (for freezer, solar apparatus), adhesives (every kind), etching reagent, anti-freezing agent, flux corrosion protective agent, formalin, water glass, plating agent, lining agent, etc.

The Palette series that are originally the optical refractometers developed to measure concentration of various solutions are not only capable of instant measurement with just a drop of sample in 2 seconds but also equipped with many devices to make operators measure sample easily and accurately.

For example, the exterior is simply designed to have the two operation switches only according to the design concept to emphasize the operability and durability.

Moreover, the battery-operated mechanism avails against measurement at any place.

The Palette series are provided in three types for wide applications. Please choose one or more types suitable for objective sample.

Sample is

...Just One Drop!

Measuring time is

...Just 2 Seconds!

1 Apply a drop of sample onto the prism surface.



2 Press the START/OFF switch.



3 After the arrow indicator blinks two times, the concentration of the sample is displayed in a Brix value(%).



## — In regard of displayed value —

The Palette refractometer measures the refractive index of a liquid sample and displays the measurement result in a Brix value(%) that the refractive index is converted into a concentration(%), sugar, water. Relation between refractive index and concentration (%) (or, water content, blend ratio of two liquids in %) depends on the kind of liquid. Therefore, the Palette refractometer requires to make a conversion table\* for between Brix (%) and concentration (%) (or, water content, blend ratio of two liquids in %) preliminary to measurement.

\* ATAGO can provide users with direct-reading type refractometers that display concentration(%) (or water content, blend ratio of two liquids in %) without need of a conversion table at the request of users. For detail, contact the Export Department of the Head

Office please



for measurement samples.

## Features

### ●Excellent functions and response

Automatic concentration measurement with the optical sensor, automatic correction of temperature error with the built-in microprocessor, and other many devices realize remarkable operability.

### ●Highly reliable digital display

Large-sized LCD shows a concentration of measurement result in digits, which are easily and quickly readable.

### ●Anticorrosive sample stage

The sample stage that is made of stainless steel for dealing with many kind of solution always keeps cleanness being free from corrosion.

## Specifications

Type	PR-101	PR-201	PR-301
Cat. No.	3412	3422	3432
Measurement range	Brix0.0~45.0%	Brix0.0~60.0%	Brix45.0~90.0%
Minimum indication	Brix0.1%		
Measurement accuracy	Brix±0.2% (with clear sugar water)		
Measuring temperature	5~40°C (same as ambient temperature)	10~40°C (same as ambient temperature)	
Measuring time	2 seconds approx		
Sample quantity	0.1ml or more		
Reference adjustment	with fresh water		with reference solution
Material	Main body: ABS resin		
Power source	006P dry battery(9V)		
Dimensions and Weight	17(W)×9(D)×4(H)cm, 300g		
Accessories	—	Sample holder	Sample holder Standard liquid

## 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)  
Minimum indication : 0.1%  
Measurement accuracy : ±0.5%(0 to 30%)  
\* Concentration of about 40%, ±0.8%  
\* Concentration of about 60%, ±1.6%  
Temperature correction : 10 to 35°C  
Power source : 006P dry battery(9V)  
Size and weight : 17×9×4cm, 300g



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)  
Minimum indication : 0.1%  
Measurement accuracy : ±0.5%(0 to 30%)  
\* Concentration of about 40%, ±0.8%  
\* Concentration of about 45%, ±1.2%  
Temperature correction : 10 to 35°C  
Power source : 006P dry battery(9V)  
Size and weight : 17×9×4cm, 300g

### Digital Refractometer for a 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)  
Minimum indication : 0.1%  
Measurement accuracy : ±0.5%  
Temperature correction : 5 to 40°C  
Power source : 006P dry battery(9V)  
Size and weight : 17×9×4cm, 300g

### Digital Refractometer for dimethylformamide **PR-40DMF**

Cat. No. 3489

Measurement range:  
Concentration of dimethylformamide 0.0 to 40.0%(W/W)  
Minimum indication : 0.1%  
Measurement accuracy : ±0.3%  
Temperature correction : 5 to 40°C  
Power source : 006P dry battery(9V)  
Size and weight : 17×9×4cm, 300g

### Digital Refractometer for salinity **PR-100SA**

Cat. No. 3488

Measurement range:  
Concentration of salinity 0 to 100‰  
Minimum indication : 1‰  
Measurement accuracy : ±2‰  
Temperature correction : 5 to 40°C  
Power source : 006P dry battery(9V)  
Size and weight : 17×9×4cm, 300g

●Specifications and design of outer appearance are subject to change without notice.



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