

Automatic Digital Refractometers

RX- α Series

The leaders of refractometry have arrived!

RX-9000 α	(Cat.No.3263)
RX-7000 α	(Cat.No.3262)
RX-5000 α	(Cat.No.3261)
RX-5000 α -Bev	(Cat.No.3271)
RX-5000 α -Plus	(Cat.No.3266) NEW
RX-007 α	(Cat.No.3921)



(RX-9000 α , RX-7000 α)



(RX-5000 α , RX-5000 α -Bev, RX-5000 α -Plus, RX-007 α)

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RX- α Series

After applying a sample and pressing the START key, the RX- α series gives a digital readout of Refractive Index, Brix, or concentration in just a few seconds.

Application

1 Measure Refractive Index (nD) for flavors, organic solvents, oils, liquid medicines, etc.

2 Measure Brix of soft drinks, fruit juices, liquid sugars, seasonings, and more!

3 Measuring concentration of metalworking fluid, water-soluble cleaning solution, water-soluble liquid, and more!

Refractive Index (nD)

Medical liquids	Plastic liquid solution
Liquid rubber	Vegetable fat and oil
Methylene chloride	Cooking oil
Chemical agents	Concentrated solutions
Plasticizer	Spice essential oil
Chinese herbal medicine	Oil refinery production
Diesel oil	Electronic oil
Cosmetics	Animal oil and fat
Gel solutions	Polyether fluid
Crude oil	Polymer fluids
Industrial chemicals	Sodium Silicate
Synthetic resin	Organic sulfur compound
High polymers	Organic solvent (Toluene) etc.
Fragrance	
Citrus oil	
Heavy oil	

Brix

Corn syrup	Soft drinks
Liquid sugar	Sauce (Various)
Liquid egg	Tea drinks
Concentrated fruit	Seasoning liquid
Fruit puree	Seasoning soy sauce
Canned syrup	Soybean milk
Glucose	Waste liquid of sugar
Ketchup	Tomato juice
English tea	Milk drinks
Coffee, Cocoa	Honey
Condensed milk	Fermentation liquor
Jam	Pickle (liquid)
Soy sauce	Starch syrup
Vinegar	Sweet syrup
Starch	Gelatin etc.

User Scale

DMF	Soluble cutting oil
IPA	Citric acid, acetic acid
PVA	Glycerin
Amino acid	Lubricating oil
Ammonia	Juice from tobacco leaves
Ethanol	Sodium carbonate
Ethylene glycol	Antifreeze agents
Propylene glycol	Urine
Starch liquid	Broth
Water-soluble cleaning solution	Injection solution
Coolant solution	Spinning liquid
Calcium chloride	Rust preventive
Sodium chloride solution	Formalin
Saltwater	Fire extinguishing solution
Surfactants	Metalworking fluid
Hydrogen peroxide solution	Cupric sulfate etc.
Sodium hydroxide	

RX- α series conforms to ASTM Standards.

■ RX- α series Special features for each model

HIGH PERFORMANCE



Features

The best digital refractometer! It measures samples with very high accuracy, over a wide range.

WIDE RANGE



This is ideal for samples with a high Refractive Index, oils and fats with a high melting point, and other similar samples.

STANDARD



Refractive Index measurements are highly accurate to ± 0.00004 , and Brix to $\pm 0.03\%$. Great for measuring Brix of foods, beverages and sugar solutions.

FLAT STAGE



RX-5000 α with a virtually flat sample stage, for easy sample clean-up! Designed to measure beverage samples.

HIGH ACCURACY



The new RX-5000 α -Plus features improved accuracy over the RX-5000 α .

Model Use	RX-9000X (Cat.No.3263)	RX-7000X (Cat.No.3262)	RX-5000X (Cat.No.3261)	RX-5000X-Bev (Cat.No.3271)	RX-5000X-Plus (Cat.No.3266)
The ATAGO conversion method complies with ICUMSA Standard SPS-3(2000).					
Measurement Items	Refractive Index (nD), Brix (Automatic Temperature Compensation), 30 User Scales			Refractive Index (nD), Brix (Automatic Temperature Compensation), 60 User Scales	
Measurement range	Refractive Index (nD) 1.32500 to 1.70000 Brix 0.00 to 100.00%	Refractive Index (nD) 1.3250 to 1.7000 Brix 0.0 to 100.0%		Refractive Index (nD) 1.32700 to 1.58000 Brix 0.00 to 100.00%	
Minimum indication	Refractive Index (nD) 0.00001 or 0.0001 Brix 0.01% or 0.1% (by selection) Temperature 0.01°C	Refractive Index (nD) 0.0001 or 0.00001 Brix 0.1% or 0.01% (by selection) Temperature 0.01°C		Refractive Index (nD) 0.00001 Brix 0.01% or 0.1% (by selection) Temperature 0.01°C	
Measurement accuracy *Repeatability	Refractive Index (nD) ± 0.00004 ± 0.00002 (nD: 1.32200 to 1.40000 at measurement temperature 10.00 to 30.00°C) Refractive Index (nD): ± 0.00010 (For ranges other than the above) Brix $\pm 0.03\%$ (R) $\pm 0.01\%$ (R) (Brix 0.00 to 50.00% at measurement temperature 10.00 to 30.00°C) Brix $\pm 0.05\%$ (R) $\pm 0.01\%$ (R) (Brix 50.01 to 100.00% at measurement temperature 10.00 to 30.00°C) Brix $\pm 0.10\%$ (R) $\pm 0.02\%$ (R) (For temperatures outside the above ranges) Temperature $\pm 0.05^\circ\text{C}$	Refractive Index (nD) ± 0.0001 ± 0.00005 Brix $\pm 0.1\%$ (R) $\pm 0.02\%$ (R) Temperature $\pm 0.05^\circ\text{C}$	Refractive Index (nD) ± 0.00004 ± 0.00002 Brix $\pm 0.03\%$ (R) $\pm 0.01\%$ (R) Temperature $\pm 0.05^\circ\text{C}$		Refractive Index (nD) ± 0.00002 ± 0.00001 Brix $\pm 0.01\%$ (R) $\pm 0.01\%$ (R) Temperature $\pm 0.05^\circ\text{C}$
Measurement modes	MODE-1: This is the standard and most common mode of measurement. The sample's temperature is adjusted to the set target temperature and then the measurement is taken. MODE-2: This mode is used to measure the sample quickly and when accuracy is not as critical. After the START key is pressed, the unit measures the Refractive Index and temperature at short intervals and displays the estimated value at the target temperature. MODE-3: This mode is the quickest way to measure and is best suited when the properties of the sample are changing constantly. In this mode, the unit starts measuring immediately after the START key is pressed. A time delay can also be programmed to postpone the measurement after pressing START.				
Automatic Temperature Compensation Range (nD)	5.00 to 70.00°C (the lower limit is the room temperature minus 10°C)			5.00 to 60.00°C (the lower limit is the room temperature minus 10°C)	
Dimensions and weight	37 x 26 x 14cm, 6.9kg (main unit only)			37 x 26 x 14cm, 6.4kg (main unit only)	

(R) On measurement of Sucrose solution by MODE-1

■ RX- α Series Common Use

Measuring system	Optical-refraction critical-angle detection system
Light source	LED
Output	- Digital Printer DP-RX or DP-RD (Optional) - Computer - RS-232C Connection to a USB port requires a USB to RS-232 adapter (Optional)

Materials	Prism : Artificial Sapphire Sample stage : SUS316
Power supply	AC100 to 240V, 50/60Hz
Power consumption	85 VA
Sample volume	Greater than 0.1ml
Environmental operating conditions	Temperature: 5 to 40°C, Humidity: Max. 90% RH, Altitude (above sea level): Max. 5,000m

◆ RX-α Series Features ◆

〈Each model has customized user-friendly features〉

- ① **Easy Measuring** : The RX-α offers three unique modes for measuring samples.
- ② **Easy Handling** : Automatically calculates a user scale when three points of measurement data are entered.
- ③ **Easy Verification** : Memory function allows the user to look up the past 30 measurement values with the touch of a button!
- ④ **Easy Viewing** : By setting upper and lower standard values, a graphic upper and lower limit bar can be displayed with the value. Easily see if your measurement is within your desired range.
- ⑤ **Easy double checking** : The RX-α Series has a manual calibration function that compensates for the difference between standard liquids, or other units.

Connectable to Digital Printer

- Necessary information such as sample number, date, time and measured value can be printed for GLP/GMP purposes. (Optional: DP-RX-DP-RD)

Excellent Accuracy

- Refractive Index (nD) : Five decimal places, Brix : Two decimal places.

Clear Display

- Easy-to-read back lit LCD. (320 × 240 dpi)

Cover Plate

- Blocks outside light to ensure accuracy.

Connectable to PC

- Connect via RS-232C to Microsoft Windows through HyperTerminal.
- Connection to a USB port requires a USB to RS-232 adapter (Optional)

RX-5000α-Bev (Flat Sample Stage)

- Ideal for measuring beverage samples. Also saves time on clean up.

Funnel Type Flow Cell

- Improve efficiency by no longer cleaning the sample stage after each measurement! (Optional)

Volatile Sample Adapter

- Useful for measuring samples that have a high vaporization rate. (Optional)

Sample Stage

- Made of SUS316 for improved durability.

Temperature Control

- Internal Peltier thermo-module provides efficient and effective temperature control.

Metal Housing

- Precise optical system is well-protected by the die-cast body.

Password Function

- 4-level system fits the growing demand for internal and external security. (RX-5000α-RX-5000α-Bev-RX-5000α-Plus)

User-Friendly

- Only 2 keys are needed for normal operation!

- Once the sample reaches the targeted temperature, the measurement value is displayed along with the current temperature of the sample.

■ Optional

Funnel Type Flow Cell

- RX-5000α-RX-5000α-Plus (RE-56156)
- RX-9000α-RX-7000α (RE-56155)

Volatile Sample Adapter

- | | |
|---------------------------------|---------------------------------|
| ● RX-5000α-RX-5000α-Plus | ● RX-9000α-RX-7000α |
| Metal nozzle (RE-56151) | Metal nozzle (RE-56152) |
| without nozzle (RE-56153) | without nozzle (RE-56154) |
| Polyacetal nozzle (RE-56163) | Polyacetal nozzle (RE-56165) |
| resin without nozzle (RE-56164) | resin without nozzle (RE-56166) |

Fan filter replacement (RE-58001)

- Fan filter replacement (12 sheets)



Sucrose solutions (For checking Brix)

- Sucrose solution 10% (±0.01%) (RE-111001)
- Sucrose solution 30% (±0.01%) (RE-113001)
- Sucrose solution 50% (±0.02%) (RE-115002)



World's most accurate measurements!



Automatic Digital Refractometer (Cat.No.3921)

RX-0070

Measurement of low concentration samples
(less than 5% aqueous solutions)
with an accuracy of $\pm 0.005\%$ Brix!!

Applications

- Tea beverages
- Sugar-free or low sugar content beverages (diet beverages)
- Non-alcoholic beer and carbonated beverages.
- Low concentration of industrial solutions (surfactants corrosion prevention agents, surface treatment liquids, sodium silicate, and more!)

Specifications

Measuring system	Optical-refraction critical-angle detection system
Constant-temperature function	Built-in Peltier thermo-module
Measurement items	The ATAGO conversion method complies with ICUMSA Standard SPS-3(2000). Brix (Automatic Temperature Compensation), Refractive Index (RI), 30 User Scales
Measurement range	Brix 0.000 to 5.000% Refractive Index (RI) 1.330150 to 1.341500
Minimum indication	Brix 0.001% Refractive Index (RI) 0.000001 Temperature 0.01°C
Measurement accuracy	Brix $\pm 0.005\%$ (Under specific ambient and sample temperature) Refractive Index (RI) ± 0.000010 (at 20°C)
Measurement modes	MODE-1 : After a sample is applied on the prism and the START key is pressed, the measurement will begin after the sample reaches the target temperature. MODE-2 : The unit starts measuring immediately after a sample is placed on the prism and the START key is pressed. The measured value is displayed in 20 seconds (You can set an automatic delay using the "WAIT" function). In mode-2, the thermo-module can be returned on/off freely.
Temperature compensation range	15.00 to 30.00°C

Display method	Back lit LCD (320 x 240 dpi)
Ambient temperature	15.00 to 30.00°C
Graphic display	Setting upper and lower standard values, a graphic upper and lower limit bar can be displayed with the value.
Input of user scale	By simply inputting 3 points corresponding to Brix or concentration, the unit will calculate the conversion formula automatically.
History function	30 previous measurements are stored and can be displayed or printed.
Zero adjustment	Zero-set with air and distilled water.
Output	• Digital Printer DP-RX or DP-RD (Optional) • Computer - RS-232C Connection to a USB port requires a USB to RS-232 adapter (Optional)
Materials	Prism : Optical glass Sample Stage : SUS316
Power supply	AC100 to 240V, 50/60Hz
Power consumption	85 VA
Sample volume	Greater than 0.1ml
Constant temperature conditions	Ambient Temperature 15°C (Thermo-module can be set 15 to 20°C) Ambient Temperature 20°C (Thermo-module can be set 15 to 25°C) Ambient Temperature 25°C (Thermo-module can be set 20 to 25°C) Ambient Temperature 30°C (Thermo-module can be set 25°C)
Dimensions and weight	37 x 26 x 14 cm, 6.9kg (main unit only)

Optional

Digital Printer
DP-RX (Cat.No.3121)

Printing method : Thermal dot
Power supply : AC adapter (AC100 to 240V)
Power consumption : 13VA
Dimension and weight : 17 x 16 x 7cm, 580g (main unit only)



Digital Printer
DP-RD (Cat.No.3122)

Printing method : Dot impact
Power supply : AC adapter (AC100 to 240V)
Power consumption : 7VA
Dimension and weight : 11 x 18 x 9cm, 470g (main unit only)



EXPLANATION OF ICONS

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



- RS-232C Interface
- Interface RS232C pour PC
- Interface RS232C
- Interface RS232C
- RS-232C (4800)



- Can be connected to a printer
- Sortie imprimante
- Verbindung mit Personalcomputer
- Collegabile a stampante esterna
- Conexión para impresora
- 打印机接口



- User scales can be inputted
- Echelles à taper programmables
- Eingabe von Anwenderskalen
- Scale di misura impostabili dall'utente
- Definición de escalas de usuario programables
- 可输入用户设定刻度



- Measurement at a set temperature
- Mesure à température constante programmable
- Messung bei voreingestellter Temperatur
- Misura a temperatura impostata
- Medida a temperatura prefijada
- 可设定温度测量



- Automatic Temperature Compensation
- Compensation automatique de température
- Automatische Temperaturskompensation
- Compensazione automatica della temperatura
- Compensación de automática de temperatura
- 自动温度补偿



- Calibration with water
- Calibration "point" sur eau distillée
- Kalibrierung mit Wasser
- Calibrazione con acqua
- Calibración con agua
- 用水校准



- Digital display
- Affichage numérique
- Digital Anzeige
- Display digitale
- Pantalla digital
- 数字显示



- AC outlet (AC100 to 240V)
- Alimentation secteur (CA 100 à 240 V)
- AC Ausgange (AC 100 bis 240V)
- Uscita AC (AC 100-240V)
- Conexión a 240V CA
- AC插座 (AC 100至240V)



- Refractive index scale
- Indice de réfraction
- Skala für Refraktive Index
- Indice di rifrazione
- Escala de índice de refracción
- 折射率刻度



- High temperature samples
- Résistant à la chaleur
- Hittebestendig
- Resistente al calore
- Resistente al calor
- 耐高温样品

All ATAGO refractometers are designed and manufactured in Japan.



HACCP GMP GLP

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

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*Specifications and appearance are subject to change without notice.