

ICUMSA compliant

Automatic Polarimeter



**Automatic Temperature Compensation
Function for International Sugar Scale
Finally, a multifunctional fully automatic polarimeter
at a reasonable price!**

**Automatic
Polarimeter**

AP-300

Cat.No.5291



- Angle of Rotation
- International Sugar Scale
(without temperature compensation)
- International Sugar Scale
(with Automatic Temperature Compensation)
- Specific Optical Rotation
- Concentration
- Purity



**Automatic
Polarimeter**

AP-300

Features

- **Easy To Use:** Simply place an observation tube in the sample chamber of the AP-300 and press START key
- The minimum angle of rotation is 0.01° , the minimum International Sugar Scale is 0.01°Z
- **Automatic Temperature Compensation Function** for International Sugar Scale with a range between 18°C and 30°C
- **Conforms with ICUMSA standards**
- Built in memory stores the 30 most recent measurement readings
- Out-of-range measurements are indicated instantly by graphic display
- The AP-300 offers ease of use with a very competitive price
- Compact and space saving

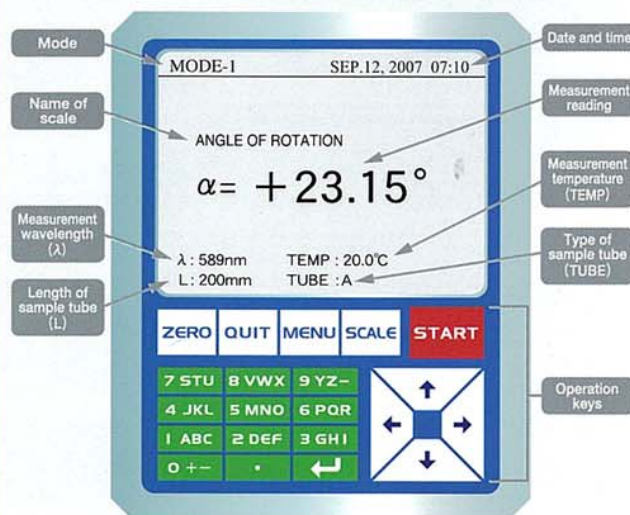
NEW Average Measurement Value is Displayed!

NEW Password Function as necessary for ISO Standard!

Application

- Measures the specific optical rotation of medical agents
- Measures the concentration of optically active substances found in fragrance materials or chemical compositions
- Measures the international sugar scale and the purity of sugar
- Identifies the attributes of inverted sugar, etc.
- Measures the specific optical rotation or the concentration of optically active substances

Example of angle of rotation display



Explanation of measurements display

● Angle of rotation

The angle of rotation is the basic numeric value measured by polarimeters, and changes depending on the concentration of the solution, the length of the observation tube, temperature, and/or the measurement wavelength. It is symbolized by " α " and indicated in " $^\circ$ ".

● International Sugar Scale

The International Sugar Scale is indicated in " $^\circ\text{Z}$ ".

The measurement value of 26g of sucrose in 100ml of sucrose solution in a 200mm observation tube is 100°Z . This measurement value is commonly used in the sugar manufacturing industry, and is usually temperature-compensated to the reference temperature of 20°C (68°F).

The AP-300 can display the measurement value with or without temperature compensation (Automatic Temperature Compensation, "ATC").

● Specific Rotation

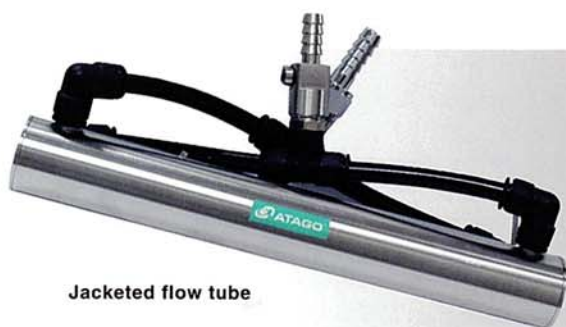
The Specific Rotation is a numeric value unique to each substance. By definition, the specific rotation value is equivalent to the angle of rotation obtained by a measuring a solution of 100% concentration in a 100mm observation tube (although such a measurement is actually not practical). Specific rotation is symbolized by " α " and indicated in " $^\circ$ ".

● Concentration

The Concentration is the density of a liquid solution made by dissolving an optically active substance in water or alcohol. It is indicated in " $\text{g}/100\text{ml}$ ".

● Purity

The Purity is the proportion of sucrose compared to the soluble solid content in a sample. It is indicated in "%". To measure the purity, input the Brix value of the sample (which can be obtained by using an ATAGO refractometer) into the AP-300 before taking a measurement.



Jacketed flow tube



Jacketed flow tube with funnel

Observation tubes

- RE-72001 : Observation tube 100mm long OT-100 (A)
- RE-72002 : Observation tube 200mm long OT-200 (A)
- RE-72036 : Jacketed flow tube 50mm
- RE-72034 : Jacketed flow tube 100mm
- RE-72035 : Jacketed flow tube 200mm
- RE-72033 : Jacketed flow tube with funnel 100mm
- RE-72032 : Jacketed flow tube with funnel 200mm
- RE-72037 : Unjacketed flow tube with funnel 100mm
- RE-72038 : Unjacketed flow tube with funnel 200mm
- RE-72042 : Unjacketed small volume observation tube 10mm long
- RE-76015 : Sample chamber cover for Flow Cell (Cover only)
- RE-76016 : Inner lid for 100mm tube
- RE-76017 : Inner lid for 200mm tube
- RE-76018 : Inner lid for 50mm tube

*To use the flow tubes, the sample chamber RE-76015 and a inner lid matching the size of the tube will be necessary to be purchased.

Special Packages (Recommended for sugar industry)

ATAGO has prepared 2 different AP-300 packages for the sugar industry. Users have a choice between 2 types: Temperature Controlled Type A and Temperature Compensation Type B. The AP-300 comes with Automatic Temperature Compensation for International Sugar Scale. A Circulating Constant Temperature Bath is not necessary when the temperature compensation function is used or when the AP-300 is used in a temperature-controlled room.

Type A

Temperature Controlled

Cat.No.5296

- AP-300 (including accessories)
- Jacketed flow tube with funnel and temperature sensor for jacket (200mm - approximate volume 15ml)

※ Circulating Constant Temperature Bath 60-C3 (Cat.No.1921) sold separately.

Type B

Temperature Compensation

Cat.No.5297

- AP-300 (including accessories)
- Unjacketed flow tube with funnel (200mm - approximate volume 15ml)

ICUMSA compliant

Automatic Temperature Compensation Function for International Sugar Scale



AP-300 Specifications

Measurement scales	Angle of Rotation, International Sugar Scale (without temperature compensation), International Sugar Scale (with Automatic Temperature Compensation)
Measurement readings	Angle of Rotation, International Sugar Scale (without temperature compensation), International Sugar Scale (with Automatic Temperature Compensation), Specific Optical Rotation, Concentration, and Purity.
Measurement range	Angle of Rotation: $-89.99 \sim +89.99^\circ$ International Sugar Scale: $-130.00 \sim +130.00^\circ\text{Z}$
Minimum indication	Angle of Rotation: 0.01° International Sugar Scale: 0.01°Z
Measurement accuracy	Angle of Rotation: $\pm 0.01^\circ$ International Sugar Scale: $\pm 0.03^\circ\text{Z}$ (Checked by reading a standard quartz plate)
Temperature compensation range for International Sugar Scale	$18.0 \sim 30.0^\circ\text{C}$
Length of observation tube	Up to 200mm

Temperature accuracy	$\pm 0.5^\circ\text{C}$
History function	History function stores the 30 previous measurement values for reference, printing or exporting to a computer.
Display panel	Backlit Color LCD
Graphic display	Graphic display indicating the conformity of measurement values for measurements with limit settings.
Additional Features	(1) Average Measurement Value (2) Password Function
Output	(1) Digital Printer DP-63 or DP-AD (optional). (2) RS-232C input/output ports for connecting to a computer system.
Light source	Halogen lamp
Accessories	100mm, 200mm observation tube (1 each)
Power supply	AC100V to 240V, 50/60Hz
Power consumption	50VA
Dimensions and weight	48.5×28.5×17.5cm, 13.9kg (main unit only)

Option

Digital printer DP-63

Cat.No.3118



Input method	RS-232C
Type of printer	Thermal dot matrix printer
Printing data fields	Angle of rotation, International Sugar Scale, Specific optical rotation, Concentration, Purity, Length of sample tube, Measurement temperature, Day, Month, Year and Time
Power supply	DC6.5V adapter
Power consumption	13VA
Dimensions and weight	17×16×7cm, 580g (main unit only)

Digital Printer DP-AD

Cat.No.3123



Input method	RS-232C
Type of Printer	Impact dot printing on rolled plain paper (not thermal)
Printing data fields	Angle of rotation, International Sugar Scale, Specific optical rotation, Concentration, Purity, length of sample tube, Measurement temperature, Day, Month, Year and Time
Power supply	DC7V adapter
Power consumption	7VA
Dimensions and weight	11×18×9cm, 470g (main unit only)

Quartz control plates

- RE-72043: Quartz Control Plate 8.5°
- RE-72044: Quartz Control Plate 17°
- RE-72045: Quartz Control Plate 34°



Circulating constant temperature Bath 60-C3

Cat.No.1921



Tank capacity	0.5 l
Temperature setting range	10 to 60°C (water)
Constant-temperature accuracy	$\pm 0.2^\circ\text{C}$, PID control method using a thermo-module
Flow rate	4 l/min.
Power supply	AC 100 to 240V, 50/60Hz
Power consumption	430VA
Dimensions and weight	38×24×27cm, 11.0kg (main unit only)

EXPLANATION OF ICONS

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



- Can be connected to a printer
- Sortie imprimante
- Verbindung mit Personalcomputer
- Collegabile a stampante esterna
- Conexión para impresora
- 可與印表機連結



- RS-232C Interface
- Interface RS232C pour PC
- Interface RS232C
- Interfaccia RS232C
- Interface RS232C
- RS-232C輸出



- Automatic Temperature Compensation
- Compensation automatique de
- Automatische Temperaturkompensation
- Compensazione automatica della temperatura
- Compensación de automática de temperatura
- 自動溫度補償



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



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

All ATAGO polarimeters are designed and manufactured in Japan.

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

ATAGO CO.,LTD.

Headquarters: 32-10, Honcho, Itabashi-ku, Tokyo 173-0001 Japan
TEL: 81-3-3964-6156 FAX: 81-3-3964-6137
overseas@atago.net http://www.atago.net/

ATAGO U.S.A.,Inc.

12011 NE First Street, Bldg. C, Suite 110, Bellevue, WA 98005 U.S.A.
TEL: 1-425-637-2107 FAX: 1-425-637-2110
customerservice@atago-usa.com http://www.atago.net/

ATAGO INDIA Instruments Pvt. Ltd. (Sales Office)

A-501, Mangal Aarambh Business Centre, Near Kora Kendra, Off. S.V. Road, Borivali (West), Mumbai-400 092 India



* Specifications and appearance are subject to change without notice.