Brix scale

Brix represents the weight of sucrose in 100 grams of sucrose solution as percentage by weight. When other dissolved solids are present in the solution, Brix conversion may be applied.
Brix is a measure of the total dissolved solids in a solution and indicates the combined concentration of all soluble substances, such as sugar, salt, protein, and acids.

Automatic Temperature Compensation

The readings are corrected, based on the temperature of the prism, within the automatic temperature compensation range.
【Caution】
◇ Measurements may fluctuate with hot or cold samples. Wait for approximately 20 seconds to press the START button. Measurements will stabilize once the instrument acclimates to the sample temperature.

Storage and Maintenance



Store the instrument in a dry place away from direct sunlight. Exposure to humidity and heat may damage the instrument.



Clean and dry the sample stage thoroughly, following the "Cleaning" instructions.
Store the unit away from direct sunlight at a stable temperature with as little fluctuation as possible.

Repair and Warranty

The instrument is warranted for one year from the date of purchase. This warranty is void if the instrument shows evidence of the following. Send the included batteries as well if they are still in use.

- Having been disassembled by unauthorized personnel
- Having been misused and/or operated outside the environmental specifications
- Damages to the prism and/or sample stage
- Leakage from batteries other than those included with the unit
- Water damage or having been dropped

Repair services are available for a fee after the warranty expires.
Contact an ATAGO authorized service center for service and support.

Please have the serial number information ready when contacting a service center.

Specifications

Measurement range	0.0 to 33.0% Brix (Automatic Temperature Compensation) 10.0 to 100℃
Resolution	0.1% Brix / 0.1℃
Accuracy	±0.2% Brix / ±1℃
Automatic temperature compensation range	10 to 100℃
Ambient temperature range	10 to 40℃
Sample volume	At least 0.3mL
Measurement time	Approx. 3 seconds
Backlight	The backlight stays on for 30 seconds after any button is pressed.

Maximum number of data history	100
Output	NFC Forum Type 4 Tag ISO/IEC 14443 Type A Output category Date Time, Brix [%] ,Temp [degC] (e.g.) 2017/08/17 09:30:45, 12.3, 20.4
Power supply	Two (2) AAA alkaline batteries
Battery life	Approx. 11,000 measurements (when using alkaline batteries)
International Protection class	IP65
Dimensions and weight	55 (W) x 31 (D) x 109 (H)mm, 100g (main unit only)

The product is in conformity with the requirements of the EMC Directive 2004/108/EC.
Patent Granted in Japan, United States, Germany, China and Taiwan.

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2110K Printed in Japan

3843-E03

Digital hand-held "Pocket" Refractometer

PAL-0

Cat.No.3843

ATAGO®
Instruction Manual

Parts

The warranty period extension method 1 year→2 years

The warranty period will be extended from 1 year to 2 years when you register customer information.
ATAGO Logger NFC can also be downloaded at the same time.

QR code

Trouble scanning the code? Access this link
https://www.atago.net/ur/index.php?l=en



LCD
Measurement results, prism temperature, remaining battery charge, etc., are displayed.
The displayed value is an example.

START button (POWER button)
Press to take measurements and hold down to turn off the display.

Battery compartment
Place and remove batteries from here.

Sample stage
Apply water and samples on the glass prism located in the center of the sample stage.

ZERO button
Press to perform zero-setting.

START button & ZERO button
Press to set date, time, and delete data history.

Lanyard hole

GOOD DESIGN

Image is for explanation purposes only. It may be different than the actual product purchased.

Contents

◆ Main unit.....1 ◆ Instruction Manual (this book).....1 ◆ Inspection Report ... 1 ◆ AAA batteries 2

AAA alkaline batteries are included. Remove the tape from the battery compartment before inserting the batteries.

ATAGO instruments are rigorously inspected to ensure each unit meets the highest standards of quality assurance.

Introduction

Thank you for purchasing the instrument. Carefully read and follow all instructions. Keep this manual for future reference.

Safety Instructions

Read and follow all safety instructions before operating the instrument. Failure to comply with the following instructions may result in personal injury or property damage.

⚠ WARNING

◇ Ensure safety when handling hazardous materials. Observe precautionary measures and use protective equipment, Be aware of the hazards of such chemicals and emergency response guidelines.
◇ ATAGO may not be held liable for any injury or damage arising in connection with handling of hazardous materials during the use of the instrument.
◇ Do not drop the instrument or subject it to strong physical shock.
◇ Do not attempt to repair, modify, or disassemble the instrument.

⚠ CAUTION

◇ Carefully read this manual to have basic knowledge of the function of each component.
◇ ATAGO is not liable for any loss and damage caused by the measurement and use of this instrument.
◇ Some acids may corrode the glass prism and/or metal sample stage, which may cause erroneous measurements.
◇ Do not use metal tools, such as a spoon, as they may scratch the prism, resulting in erroneous measurements.
◇ Do not use water above 50℃ to rinse the instrument.
◇ Only use the specified battery type. Observe proper polarities, properly aligning the anodes and cathodes.
◇ Store the instrument away from direct sunlight/heat sources and excessive amounts of dust/debris.
◇ Do not expose the instrument to a rapid change in ambient temperature.
◇ Do not subject the instrument to strong vibration.
◇ Do not subject the instrument to extreme cold temperature.
◇ Do not place the instrument under anything heavy.
◇ Loosen the battery compartment cover for air transportation.

<International Protection Classification IP65>

◇ The instrument is water-resistant, not waterproof, and should not be submerged.

<Chemical Resistance of Body Case>

◇ The body case is made of resin. Do not expose it to water vapor. Some solvents may compromise the structural integrity of the instrument.

Zero-setting and Measurement

Zero-setting

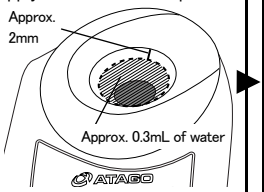
【Caution】

◇ Zero-set the instrument at the beginning of each day before use as well as after replacing the batteries.

◇ Let water on the prism acclimate to the temperature of the instrument before zero-setting.

◇ When "AAA" is displayed, wipe the prism clean, apply water, and press the ZERO button again.

1. Wipe the prism clean and apply about 0.3mL of tap water.



2. Press the START button, and after "---" appears, the measurement and the prism temperature are displayed.



3.

Measurement : not 0.0%

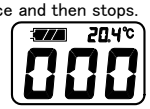
Press the ZERO button while the water is on the prism.



Measurement : 0.0%

The instrument is zero-set correctly.

4. Zero-setting is complete when "000" blinks twice and then stops.



Proceed to measurement.
Wipe the prism clean with tissue paper.

Measurement

【Caution】

◇ Do not use metal tools to apply samples on the prism as they may scratch the prism.

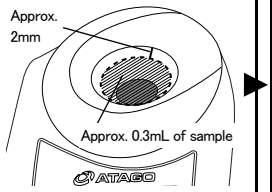
◇ Initial measurements may fluctuate with hot or cold samples. Wait for the instrument to acclimate to the sample temperature, approximately 20 seconds, to press the START button. Alternatively, press the START button multiple times until measurements become stable.

◇ Do not splash water above 50℃. The plastic may warp, which may compromise the water resistance.

- When measuring hot samples, place only the necessary amount and do not let it overflow from the sample stage well.
- When hot water is necessary to clean off hardened samples, use water-soaked gauze around the prism area and keep hot water away from the body case.

◇ The displayed temperature is that of the prism and may not necessarily match the temperature of the sample.

1. Wipe the prism clean and apply about 0.3mL of the sample.



2. Press the START button



3. After "---" appears, the measurement and the prism temperature are displayed.



<LCD Auto Shut-off>

The instrument will turn itself off after 2 minutes of inactivity. To manually turn it off, hold down the START button for more than 2 seconds.

<For oily/fatty samples>

Try stirring the sample on the prism while measuring to improve the repeatability of oily/fatty samples.

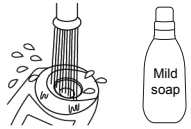


Cleaning

【Caution】

◇ Do not scratch the prism.

◇ The instrument is water-resistant, not waterproof, and should not be submerged.



1. Wipe off the sample.
2. Clean the prism and sample stage using a mild soap and thoroughly rinse with water.
3. Dry the area with tissues thoroughly.

Error Messages

The following messages alert the user when an operation has failed.



The battery is low.



The ZERO button was pressed with nothing or something other than water on the prism.



The START button was pressed with nothing or an insufficient amount of sample on the prism.



The sample measured outside the measurement range.



Too much light is entering the prism, and the instrument cannot measure accurately.
(Shade the sample stage with your hand and take a measurement again.)



The prism temperature is below the temperature range.



The prism temperature is above the temperature range.



The instrument is faulty.
(Replace the batteries. Contact ATAGO if this error persists.)

Replacing the Batteries

【Caution】

◇ Fasten the battery compartment cover tightly to prevent water ingress or poor connection, which will cause erroneous measurements. Push the cover in firmly and turn.

◇ When the O-ring on the cover is dirty or damaged, the water resistance may be compromised. (Figure 1)

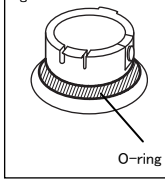
◇ When the battery icon indicates the low power level (), replace both batteries with a brand new set of AAA alkaline batteries (1.5V).

◇ Static images may occasionally appear on LCD. Such retained pixel charges do not indicate a faulty display, consume the battery power, or affect the instrument's performance in any way.

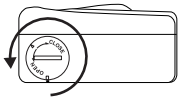
◇ Check the expiration dates on batteries before purchase.

◇ Zero-set the instrument after the batteries are replaced.

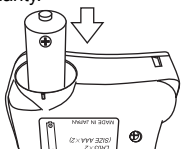
Figure1



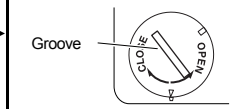
1. Insert a coin in the groove on the battery compartment cover. Turn the coin counterclockwise to remove the cover.



2. Insert batteries, observing the correct polarity.



3. Align the cover and push it down.



4. Close the battery compartment cover by pushing the cover in with a coin in the groove and turning it clockwise until it stops.

*Turning excessively may cause malfunction.

