4921-E01

ATAGO®
Instruction Manual

Digital Hand-held "Pocket" Brix-Salt Meter

PAL-BXISALT

Cat. No. 4921

Measure Brix and Salt at the same time!
Save time and space.
It's even equipped with a data communication function!

In just-a-minute

From 1 year to 2 years
Free Extended Warranty

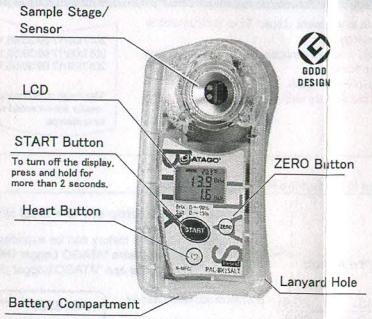
1. It requires only 1 minute!
Simply by answering questions, warranty period is extended from 1 year to 2 years.

2. ATAGO Logger NFC can also be downloaded at the same time.

Access now ⇒

(The registration page can be accessed from ATAGO website.)

Parts



Preparation

Remove the tape from the battery compartment and close the cover.

Note The cover must be closed properly to maintain water resistance. Keep the batteries in during storage.

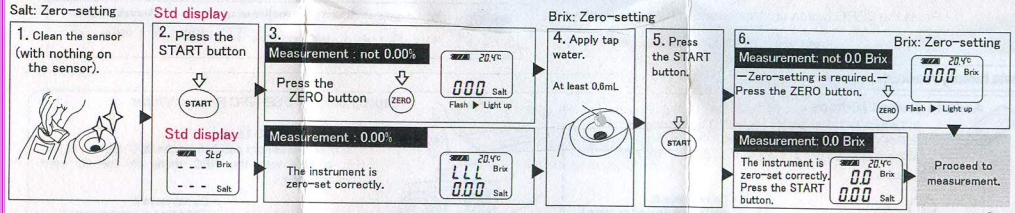
Measurement Principles

This instrument uses the electric conductivity method to measure and display salt concentrations % (g/100g).
When complex samples containing ingredients other than salt are measured, the conductivity readings may be different from readings by other methods.
Always dilute a complex sample to 10% by weight when its Brix exceeds 6%.

Brix is a measurement of the total dissolved solids (TDS) in a solution and measured by a refractometer. Check the Brix of you sample with a refractometer. For optimum results, it is recommended to dilute complex samples that are 6% Brix or higher.

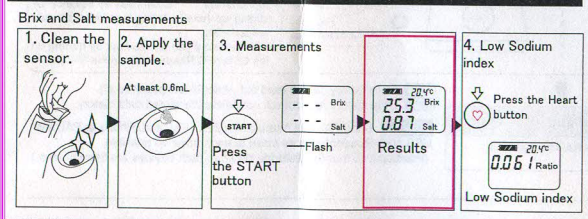
Preparation①Zero-setting

※Recommended on a daily basis.

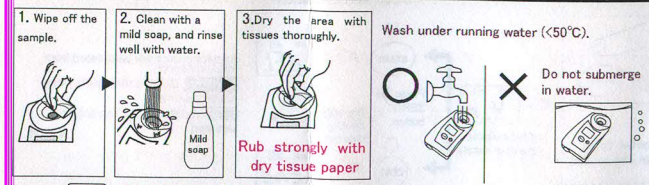


Brix and Salt Measurements

Brix and Salt measurements



Cleaning



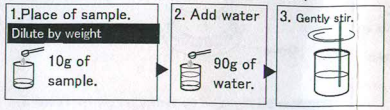
memo Do not use alcohol.

Error Messages

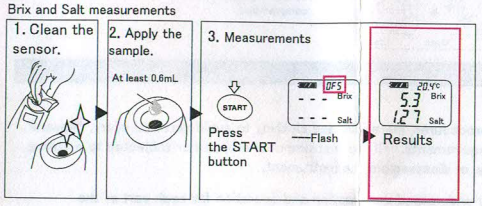
- LLL ·Brix : Sample not enough.
  ·Temperature : Below the range.
- RRR ·Brix : Zero-setting with other than water.
  ·Salt : Calibration with other than reference solution.
- HHH ·Above the measurement range.
- nnn ·Brix : Too Bright. Shade the sample stage with your hand.
- ooo ·Low sodium index error.
- Err ·Creating user scales error.
- Lo ·The battery is low.

Brix and Salt Measurements

Making Dilutions (Example of 10-fold dilution)



Brix and Salt measurements



Offset feature use #1

Input a coefficient (a) of 10, and the value multiplied by 10 will be displayed.

Displayed value

Sample Preparation

Drinkable as is (less than 6% Brix)
⇒No dilution is necessary

Liquid condiments (over 6% Brix, over 10% salt, and high in non-salt components)
Soy sauce, Worcester sauce, etc.
⇒Please dilute.
☞ See "Making Dilutions"

Paste
Mayonnaise, miso paste, ketchup, etc.
⇒Please dilute.
☞ See "Making Dilutions"

Solid food
Pickles, ham, cheese, chips, etc.
⇒Please mince/grind and dilute.
☞ See "Making Dilutions"
※Wait for approx. 5 minutes for the solids to settle to the bottom and measure the clear liquid on top.

Measurement Examples

Tomato puree	1.7%
Ketchup	3.0%
BBQ sauce	4.8%
Oyster sauce	9.4%
Salmon	2.4%
Salted cod roe	5.2%
Potage	1.2%
Miso soup	0.9%
Soy sauce	13.0%
Mayonnaise	1.6%
Pickled radish	3.6%
Pickles	1.7%
Ham	1.1%
Sausage	0.8%
Noodle soup	1.4%
Curry	1.6%
Gouda	0.9%
Butter	0.1%
Crackers	2.3%
Chips	1.4%

(Test data by ATAGO)

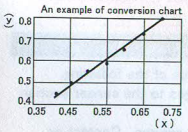
Salt: Offset Function

Discrepancies with titration
Due to the difference in measurement principles, readings from the instrument may not match up exactly with the readings by titration for certain samples. However, correlation between the two testing methods can be seen.

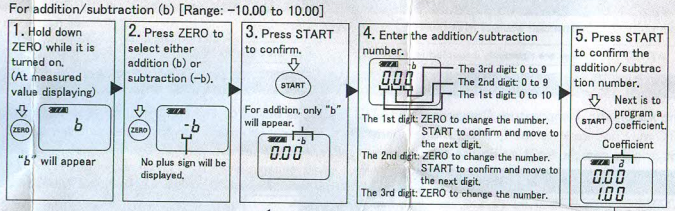
Offset feature use
Create a conversion chart between the two testing methods.

$y = a x + b$

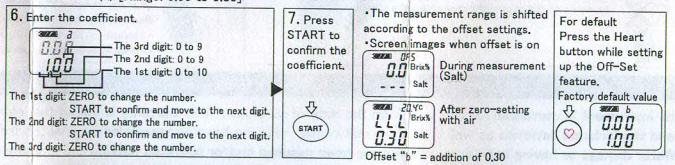
y : titration readings
x : The instrument readings
a : coefficient (multiplication)
b : addition/subtraction number



For addition/subtraction (b) [Range: −10.00 to 10.00]



For coefficient (a) [Range: 0.50 to 5.00]



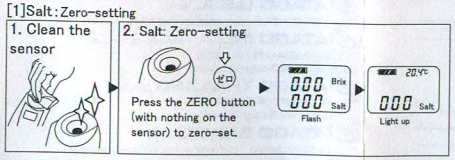
Salt: Checking with Reference Solution

When there is any doubt regarding accuracy of measurement results, adjust the reference value according to the following procedure.

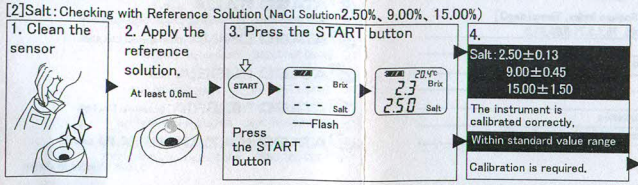
memo The reference solution is available from ATAGO.
Part No. RE-120250 NaCl Solution 2.50%
Part No. RE-120900 NaCl Solution 9.00%
Part No. RE-121500 NaCl Solution 15.00%

memo Calibration automatically recognizes 2.50%, 9.00%, 15.00%.

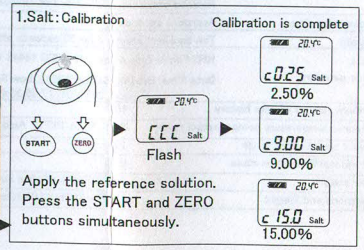
[1]Salt : Zero-setting



[2]Salt : Checking with Reference Solution (NaCl Solution 2.50%、9.00%、15.00%)

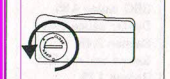


[3]Salt : Calibration

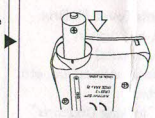


Inserting Batteries

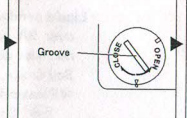
1. Insert a coin in the groove on the battery compartment cover. Turn the coin counterclockwise to remove the cover.



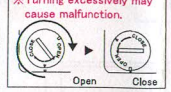
2. Insert batteries, observing the correct polarity.

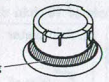


3. Align the cover and push it down.



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.





Note When the O-ring on the battery compartment cover is dirty or damaged, the water resistance may be compromised.

Safety Precautions

Read and follow all safety instructions before operating the instrument.

⚠ WARNING •When measuring hazardous materials, use proper safety procedures, materials, and clothing to avoid personal injury. Anyone handling hazardous materials should understand its properties and its safety requirements. •If the instrument is dropped or subjected to a strong impact, contact your supplier for inspection. •Do not attempt to repair, modify, or disassemble the instrument.

⚠ CAUTION •Before use, carefully read the instruction manual and fully understand the function and operation for each part of the instrument. •ATAGO is not liable for any loss and damage caused by the measurement and use of this instrument. •If this instrument is used to measure highly acidic samples, the sensor section and sample stage may be damaged, resulting in inaccurate measurements. •Do not use any metal tools when applying sample to the sensor section. The metal can damage the sensor section. If the sensor section is scratched or damaged, inaccurate measurements will occur. •When the unit needs to be washed, use water at a temperature not exceeding 50℃. •Only use the specified battery type. Observe proper polarities, properly aligning the anodes and cathodes. •Do not leave the instrument in a location exposed to direct sunlight or near a heat source for any extended period of time. •Do not change the ambient temperature of the instrument suddenly. •Do not place the instrument where it will be subject to strong vibrations. •Do not use the instrument where there are excessive amounts of dust. •Do not store the instrument in an extremely cool area. •Do not set or drop heavy objects on top of the instrument. •Loosen the battery compartment cover for air transportation. •The instrument is water-resistant, not waterproof, and should not be submerged.

Contents

Main unit…1 Instruction Manual (this book)…1 AAA batteries…2

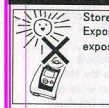
Note Please remove the tape in the battery compartment before first use.

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

Automatic Temperature Compensation

The Automatic Temperature Compensation (ATC) feature is based on temperature detected by the thermo sensor located near the sensor area. ATC may not work correctly when the temperature of the sensor area is not the same as the actual temperature of the sample. When measuring a hot or cold sample, let it sit on the sensor for approximately 20 seconds and measure, or take multiple readings until measurements become stable.

Storage and Maintenance



Store the instrument in a dry place away from direct sunlight. Exposure to humidity may cause condensation inside, and exposure to direct sunlight may cause the plastic to warp.

•Cleaning Clean and dry the sensor area thoroughly after use, leaving no sample residues or water.
(For oily samples:)
Remove oily residues with mild soap, and then, rinse with water.
•Storage Store the instrument 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 •Damages to the sensor section •Water damage or having been dropped •Having been misused and/or operated outside the environmental specifications •Leakage from batteries other than those included with the unit 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	Brix 0.0 to 90.0% , Temperature10.0 to 100℃
	SALT 0.00 to 15.00% (g/100g)
Resolution	Brix 0.1% SALT 0.01% Temperature 0.1℃
Measurement accuracy	Brix ±0.2% Temperature ±1℃
	SALT Displayed value ±0.05% (for salt concentration of 0.00 to 0.99%)
	Relative precision ±5% (for salt concentration of 1.00 to 9.99%)
	Relative precision ±10% (for salt concentration of 10.00 to 15.00%)
Measurement time	Approx. 3 seconds
Backlight	The backlight stays on for 30 seconds after any button is pressed.
Output	NFC Forum Type 4 Tag ISO/IEC 14443 Type A
Output category	Date Time, Brix[%],Salt[g/100g], Low Sodium Index, Temp[degC] (e.g.) 2021/01/17 09:30:45, 76.1,3.71,0.05,21.3
Maximum number of data history	100
Automatic temperature compensation range	Brix : 10 to 100℃ Acid : 10 to 40℃
Ambient temperature range	10 to 40℃
International Protection class	IP65
Power supply	Two (2) AAA alkaline batteries
Dimensions and Weight	55(W)×31(D)×109(H)mm , 100g (main unit only)

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

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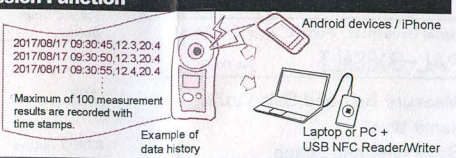
2102K Printed in Japan

About Data Transmission Function

This instrument stores maximum number of 100 measurement data. This instrument is equipped with NFC (Near Field Communication) technology.
Data history can be accessed by bringing PAL-NFC to any Android devices, iPhone or PC-linked USB NFC Reader/Writer* (in conformance to PC/SC specification).
* Operation tested with SONY USB NFC Reader PaSoRi RC-S380.
Caution Data history exceeding 100 will overwrite old activity with new data, replacing the oldest recorded information first.



Preparation

(1) Software installation

Install a software to readout the NFC tag ahead of time.

Android devices / iPhone

Applicable Application Software (app) "NFC Reader"
* If an NFC tag reader app is already installed on the Android devices or iPhone, this app can be used.

Laptop or PC + USB NFC Reader/Writer

Data history can be exported to Microsoft(R) Excel (R)(for Windows(R)) using a PAL NFC software "ATAGO Logger (NFC)."
* The app "ATAGO Logger (NFC)" is available for download : http://www.atago.net/ur/

2021/01/17 09:30:45	LLL	LLL	LLL		20.4
2021/01/17 09:31:50	12.5	0.31	0.39		20.5
2021/01/17 09:32:12	3.2	1.25	0.39		21.0
2021/01/17 09:34:26	AAA	AAA			21.2
2021/01/17 09:43:07	OOO				22.3
2021/01/17 09:43:18		OOO			22.5
2021/01/17 09:45:39	38.5	5.89	0.15		25.1
2021/01/17 09:46:07	39.2	5.92	0.15		25.3

Example of data history read out

LLL : Lower limit error.
HHH : Upper limit error.
OOO : Zero setting complete.
nnn : External light error.
AAA : Zero setting error.
ooo : Low Sodium index error.

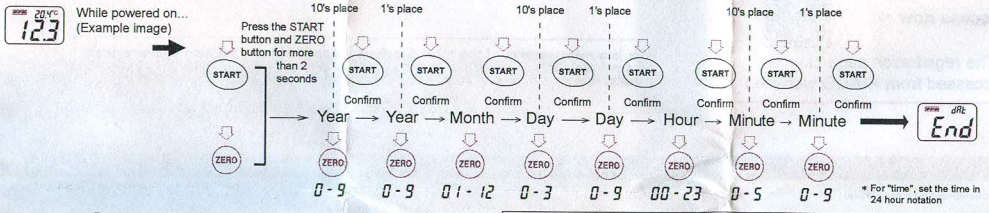
A0135897
667937E581

Back side of the body
Instrument's serial number
Last 10 digits of NFC chip number (NFC'S serial number)
You can use the NFC'S serial number to identify which instrument the readings correspond to.

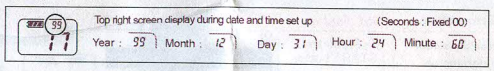
You can check the NFC chip number (serial number) by using an app that can read the serial number.
Note: Not all NFC apps capture the NFC'S serial number
Suggested app: "NFC Tools"

(2) Date and time setting

Set the date and time (year [the last two digits of the western calendar], month, date, time and minute) prior to data history readout.
memo Reset the date and time when batteries are removed for 24hours or more.



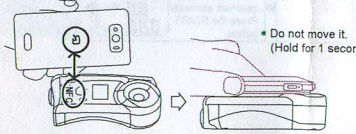
Press the ZERO button until the desired number is displayed.
Pressing the ZERO button will change the number.



Data history readout

Android devices / iPhone

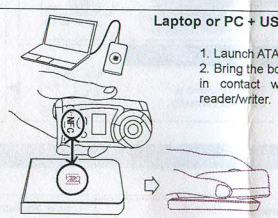
1. Launch NFC Reader (or other NFC tag reading app).
2. Position NFC on Android device or iPhone to the 'NFC' logo at the bottom portion of the PAL then bring in contact.



* NFC position on Android device or iPhone differs to the model.

Laptop or PC + USB NFC Reader/Writer

1. Launch ATAGO Logger.
2. Bring the bottom part (where the "NFC" logo is) of PAL in contact with the NFC mark on the IC card reader/writer.



* Be sure to establish the PC and IC card reader/writer connection in advance by setting up (and installing the driver) IC card reader/writer.
* Data history can be read out by holding up the USB NFC Reader/writer to the PAL unit.

All recorded data stored in this instrument are read out.

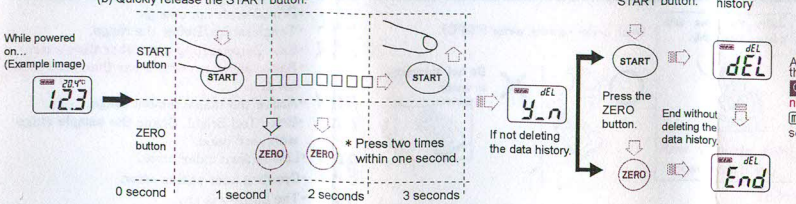
* If data history is not read out, bring both in contact and move the one that is over the other device in a forward and back or left and right in a small motion.

memo Data history can be read out while PAL is powered off.
memo Data history readout will not delete the stored data history.

Caution Bring PAL and Android devices, PAL and iPhone or PAL and USB NFC Reader/writer as close to each other as possible.
(Position it so that the distance between both devices are 5mm or less.)

Delete data history

1. Quickly (3 seconds or less) do the following button operation.
(a) While pressing the START button, press the ZERO button two times.
(b) Quickly release the START button.



All data history will be deleted from this instrument.
Caution Deleted data history can not be restored.
memo A data history can not be selected.