

Pocket Brix-Acidity Meter (Multi Fruits) Master Kit

7100-E05

ATAGO®
Instruction Manual

PAL-BX|ACID F5

Cat. No. 7100

Parts



LCD
Displays the measured values, sensor temperature, and battery indicator. 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.

START Button

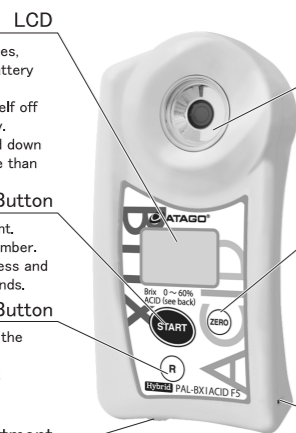
- Press to take measurement.
- Press to select a Fruit Number.
- To turn off the display, press and hold for more than 2 seconds.

R Button

- Press the button to show the sugar and acidity ratio.
- Press to confirm the Fruit Number selection.

Battery Compartment

Place and remove batteries from here.



Sample Stage

Place sample on the sensor located at the center of the sample stage.

ZERO Button

- Press to perform zero-setting.
- Press to select a Fruit Number.

Lanyard Hole

Contents

Main unit...1 Instruction Manual (this book)...1 AAA batteries...2 Measuring Spoon 1mL...1 Beaker 100mL...1 Digital scale...1 (About the Digital Scale)

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

Memo The measuring spoon is available from ATAGO. Part No. RE-39005 Measuring Spoon 1mL

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

Quick Tips

- The instrument measures the Brix in the sample solution, and the acidity in the 1: 50 dilution of the sample that is diluted with purified water.

- Press the START button once to measure the Brix.

The Brix and the acidity of the sample (stock-solution) will be displayed at the end of the measurement.

Measurement of Brix



Measurement of Acid



- Press the ZERO button to perform zero-setting for either Brix or Acidity. Zero-setting can be performed with water (for Brix) or air (for acidity)

• 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.

How to Select a Fruit Number

1. Press and hold the R button for 5 seconds (while the unit is powered on).
2. Select a Fruit Number.
Use the ZERO button to move the number upward.
Use the START button to move the number downward.
3. Press the R button to confirm the selection.

Fruit Number List

- 1 Citrus
- 2 Grape·Wine
- 3 Tomato
- 4 Strawberry
- 5 Blueberry

Zero-setting and Measurement

Preparation

Note Recommended on a daily basis.

Acid: Zero-setting

1. Clean the sensor with water. Dry the area with tissues thoroughly.
2. Press the START button (with nothing on the sensor).
"LLL" will appear.
3. Press the START button.
4. Measurement: not 0.00 Acid
—Zero-setting is required.—
Press the ZERO button (with nothing on the sensor).
Measurement: 0.00 Acid
The instrument is zero-set correctly.

"000" will appear.

Flash Light up

Proceed to Brix: Zero-setting.

Brix: Zero-setting

1. Apply tap/purified water.
At least 0.2mL
2. Press the START button.
3. Measurement: not 0.0 Brix
—Zero-setting is required.—
Press the ZERO button.
Measurement: 0.0 Brix
The instrument is zero-set correctly. Press the START button.

"000" will appear.

Flash Light up

Proceed to measurement.

Measurement

[1] Acid: Dilution (About the Digital Scale)

Memo Necessary Materials
Digital scale, Beaker 100mL

1. Press the POWER Button.
2. Place the beaker on the scale and zero set (tare). (Press the Zero-set button (tare))
3. Pour 1.00g of fruit juice into the beaker.
Memo Any amount of sample can be made as long as the dilution ratio is 1:50. We recommend 1.00g of sample to keep accuracy consistent.
4. Add purified water until the total weight is 50.00g.
Purified water
5. Gently stir.

[2] Measuring the Brix

1. Clean the sensor with water. Dry the area with tissues thoroughly.
2. Apply some sample (undiluted).
At least 0.3mL
3. Press the START button.
Measurement is displayed after "—."
4. Cleaning
Clean the sensor with water. Dry the area with tissues thoroughly.

Memo In case "LLL" is displayed, add sample and measure the Brix again. Remove sample.

[3] Measuring the Acidity

5. Apply some diluted sample (as shown in [1]).
At least 0.6mL
6. Press the START button.
After "[1]" (the Fruit Number) is displayed, the measurement value will appear. (Ex: Fruit Number 1)
The unit of Acid is %.
Memo The measurement is the value of the sample (stock-solution).
Memo The displayed value is the temperature at the measurement of acidity.

Sugar/Acid Ratio Display
Press the R button when the Brix or Acidity is displayed to show the sugar and acidity ratio. Sugar/Acid ratio = Brix% / Acidity%

Memo Press the R button to return to the measurement value display.

Cleaning

- Wipe off the sample. Clean the sensor with water. Dry the area with tissues thoroughly.

- Clean oily residues with mild soap, and then, rinse with water.

Note Handle the sensor with care so as not to scratch it.



Addendum

Acid: Measuring Without using a Scale

For approximate measurement only

[1] Acid: Dilution

Memo Necessary Materials

Measuring spoon 1mL, Beaker 100mL

1. Using the attached measuring spoon, place a level spoonful (1mL) of fruit juice in the attached beaker.
Fruit juice 1mL
2. Add purified water to the beaker until the total amount is 50mL.
50mL
3. Gently stir.

[2] Measuring the Brix

1. Clean the sensor with water. Dry the area with tissues thoroughly.
2. Apply some sample (undiluted).
At least 0.3mL
3. Press the START button.
Measurement is displayed after "—."
4. Cleaning
Clean the sensor with water. Dry the area with tissues thoroughly.

Memo In case "LLL" is displayed, add sample and measure the Brix again. Remove sample.

[3] Measuring the Acidity

5. Apply some diluted sample (as shown in [1]).
At least 0.6mL
6. Press the START button.
Measurement is displayed after "—."
The unit of Acid is %.

Acid: 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-130004 Reference solution (0.04% Citric acid solution)

Acid: Checking with Reference Solution

1. Clean the sensor with water. Dry the area with tissues thoroughly. (Press the START button to turn on the instrument.)
2. Press the ZERO button (with nothing on the sensor) to zero-set.
"000" will appear.
3. Apply the reference solution.
*Reference solution (0.04% (g/100g) Citric acid solution)
At least 0.6mL
4. Press the START button 2 times
5. Measurement: Outside standard value range*
Calibration is required.
Measurement: Within standard value range*
The instrument is calibrated correctly. (Ex: Fruit Number 1)
Memo Brix (%) may not be 0.0% (this will not affect accuracy of measurement values).
Memo Brix (%) may not be 0.0% (this will not affect accuracy of measurement values).

Acid: Calibration

6. Apply the reference solution. Turn on the instrument. Press the START and ZERO buttons simultaneously.

"CCC" will appear.
Flash Light up

*Standard Value List

1 Citrus	2.47 ± 0.25 Acid
2 Grape·Wine	1.79 ± 0.18 Acid
3 Tomato	1.49 ± 0.15 Acid
4 Strawberry	1.79 ± 0.18 Acid
5 Blueberry	2.12 ± 0.12 Acid

Error Messages

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

- Lo** •The battery is low.
- AAA** Brix
•The ZERO button was pressed with something other than water on the sensor section.
- Acid**
•The sensor was not empty when zero-setting was attempted.
•Calibration was attempted with something other than the calibration solution.
- LLL** Brix
•The START button was pressed with nothing or an insufficient amount of sample on the sensor section.
- Temperature
•The sensor temperature is below the temperature range.
- XXX** Brix/Acid
•The sample measured outside the measurement range
- Temperature
•The sensor temperature is above the temperature range.
- ooo** Brix
•Too much light is entering the sensor, and the instrument cannot measure accurately. (Shade the sample stage with your hand and take a measurement again.)
- - -** Sugar/Acid Ratio
•When the Sugar/Acid Ratio is unable to be calculated.

Measurement Value

Brix
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.

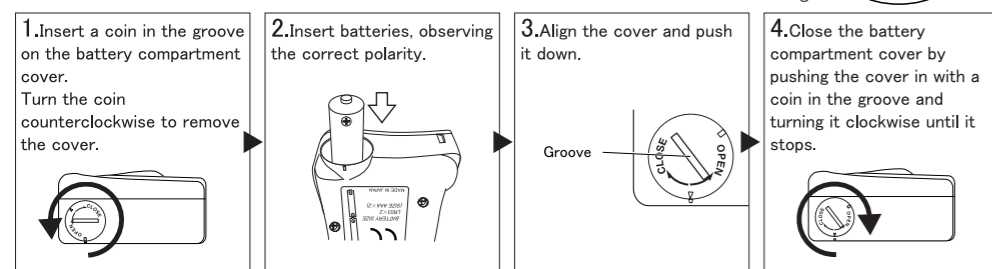
Acid
This unit measures and determines the acidity through electrical conductivity.
Citric acid is the primary acid found in Citrus, Tomatoes, Strawberries, and Blueberries.
Tartaric acid is the primary acid found in Grapes and Wine.
This unit detects total acidity and converts it into citric acid or tartaric acid.

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.

Inserting Batteries

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



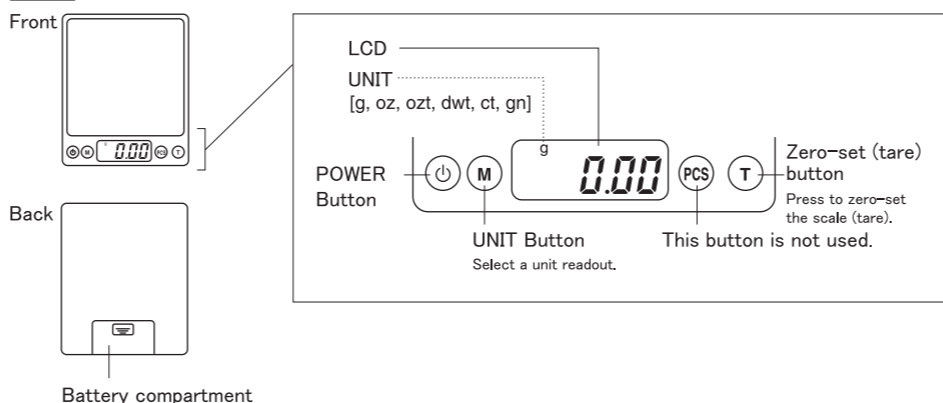
About the Digital Scale

Note Remove the tape from the battery compartment.

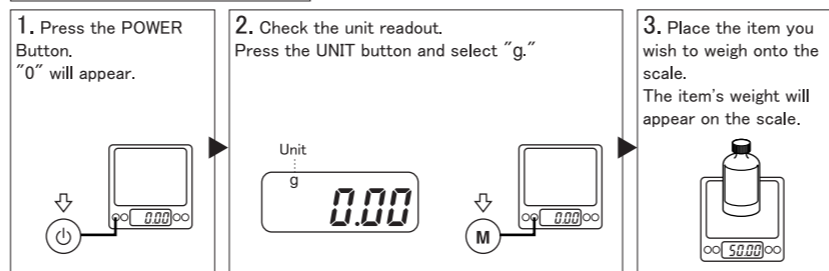
Contents

Main unit...1 Cover...2 (large and small) AAA batteries...2

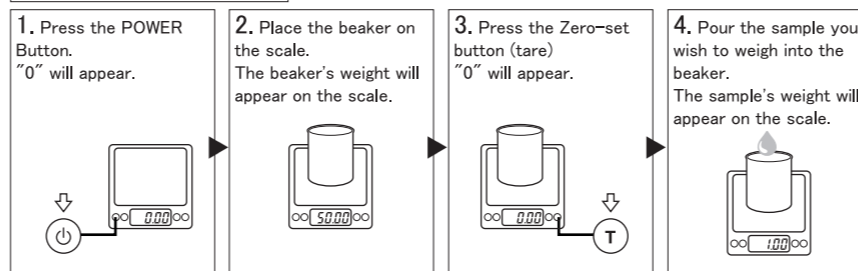
Parts



How to Use the Digital Scale



Zero-setting and Weighing



Error Messages

Lo :The battery power is low. Replace with new alkaline AAA batteries.
O-LD :The item you are trying to weigh exceeds the permissible weight limit of the scale. Quickly remove it from the scale.

Environmental conditions

- Do not expose the scale to extreme heat or cold.
- Do not expose the scale to any type of moisture.
- Use between 10 to 30°C only.
- Use in a dry, clean environment.
- Any contact with or exposure to dust, debris, humidity, strong vibrations, extreme atmospheric conditions or other electronics may affect the accuracy of the scale and result in unreliable readings.

Note

- For precise measurements, place the item you wish to weigh onto the scale gently.
- Place the scale atop a flat, stable surface.
- The digital scale is remarkably durable. However, it is a precision instrument and should be used and treated with the utmost care.
- Use of the scale for purposes other than its intended use will result in damage to its internal components.
- Do not shake or drop the scale.

Specifications

Measurement range	0.01 to 500.00g
Resolution	0.01g
Unit	g, OZ, ozt, dwt, t, gn
LCD	LCD display with backlight
Auto-Off Feature	The scale will automatically turn off after 90 seconds of inactivity.
Power supply	Two (2) AAA alkaline batteries (Do not use rechargeable batteries.)
Temperature Conditions	Ambient temperature: 10 to 30°C

Safety Precautions

Read and follow all safety instructions before operating the instrument.

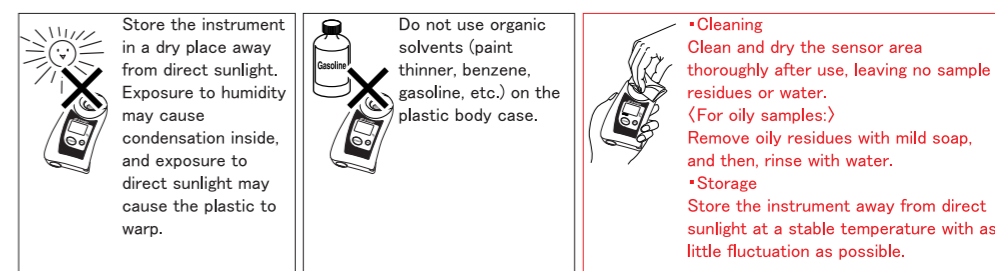
WARNING

- 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°C.
- 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.

Storage and Maintenance



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 and/or sample stage
- 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 60.0% Acid Citrus 0.10 to 4.00% Grape•Wine 0.10 to 4.00% Tomato 0.10 to 3.00% Strawberry 0.10 to 3.50% Blueberry 0.10 to 4.00% 10.0 to 40.0°C	Automatic temperature compensation range	10 to 40°C
Resolution	Brix 0.1% Acid 0.01% 0.1°C	Ambient temperature range	10 to 40°C
Measurement accuracy	Brix ±0.2% Acid ±0.10% (0.10 to 1.00%) Relative precision ±10% (1.01 to 4.00%) ±1°C	Measurement time	Approx. 3 seconds
		Backlight	The backlight stays on for 30 seconds after any button is pressed.
		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) × 31(D) × 109(H)mm, 100g (main unit only)

The product is in conformity with the requirements of the EMC Directive 2004/108/EC.

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