


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.

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



QR code

Pocket Acidity Meter (Multi Fruits) Master Kit

PAL-Easy ACID F5

Cat. No. 7300

ATAGO®
Instruction Manual

GOOD DESIGN

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.

R Button

Press to restore default settings for the Offset Feature.

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.

Lanyard Hole

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

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.							

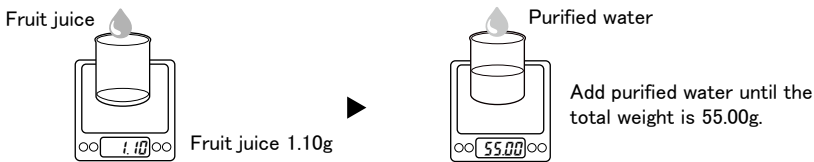
Instrument

The instrument measures the acidity (%) in the 1:50 or 1:100 dilution of a sample that is diluted with purified water.

The measurement value is the acidity (%) of the undiluted sample (stock-solution).

Sample Preparation Tips

- Sample collection
- Sample prep tips are available on the ATAGO website.
http://www.atago.net/english/g_fruits.html
<example> Apples: peel, grate and filter through a sieve or coffee filter.
- Sample dilution
- Any amount of sample can be made as long as the dilution ratio is 1:50 or 1:100 we recommend 1.00g of sample to keep accuracy consistent.
<example (1:50 dilution)>



How to Select a Fruit Number

1. Press and hold the R button for 5 seconds (while the unit is powered on).

Fruit Number display

3

2. Select a Fruit Number.

(ZERO)

Use the ZERO button to move the number upward.

(START)

Use the START button to move the number downward.

Fruit Number display

2

3. Press the R button to confirm the selection.

Fruit Number display

2

Fruit Number List

1L Low Acidity Citrus

1H High Acidity Citrus

2 Grape•Wine

3 Tomato

4 Strawberry

5 Blueberry

Zero-setting and Measurement

Preparation

Zero-setting

1. Clean the sensor with water.
Dry the area with tissues thoroughly.

2. Press the START button (with nothing on the sensor).

3. Measurement: not 0.00
—Zero-setting is required.—
Press the ZERO button (with nothing on the sensor).

Measurement: 0.00

“000” will appear.

Flash ▶ Light up

Proceed to Measurement

NoteRecommended on a daily basis.

Measurement

[1]Dilution (About the Digital Scale)

Necessary Materials : Digital scale, Beaker 100mL

Dilution ration

When selecting other than High Acidity Citrus (Fruit Number 1L•2•3•4•5).→1:50

When selecting High Acidity Citrus (Fruit Number 1H).→1:100

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 sample into the beaker.
(Memo)Any amount of sample can be made as long as the dilution ratio is 1:50 or 1:100. We recommend 1.00g of sample to keep accuracy consistent.

4. Add purified water until the total weight is 50.00g or 100.00g.

5. Gently stir.

[2]Measuring the Acidity

1. Apply some diluted sample.

2. Press the START button.

Measurement is displayed after “—.”
The unit of Acid is %.

0.25

MemoThe measurement is the value of the sample (stock-solution).

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.

NoteHandle the sensor with care so as not to scratch it.

Addendum

Measuring Without using a Scale

For approximate measurement only

[1]Dilution

Necessary Materials : Measuring spoon 1mL, Beaker 100mL

1. Using the attached measuring spoon, place a level spoonful (1mL) of sample in the attached beaker.

2. Add purified water to the beaker until the total amount is 50 or100mL.

3. Gently stir.

Proceed to [2]Measuring the Acidity

Dilution ration

When selecting other than High Acidity Citrus (Fruit Number 1L•2•3•4•5). →1:50

When selecting High Acidity Citrus (Fruit Number 1H). →1:100

Checking with Reference Solution

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

MemoThe reference solution is available from ATAGO. Part No. RE-130004 Reference solution (0.04% Citric acid solution)

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.

3. Apply the reference solution.
*Reference solution (0.04% (g/100g) Citric acid solution)

4. Press the START button

5. Measurement: not 2.47 (±0.25) Acid
Calibration is required.
Measurement: 2.47 (±0.25) Acid
The instrument is calibrated correctly.

Calibration

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

“CCC” will appear.

*Standard Value List

1L	Low Acidity Citrus	2.47 ±0.25 Acid
1H	High Acidity Citrus	4.54 ±0.45 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 ±0.21 Acid

Error Messages

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

Lo

•The battery is low.

LLL

Temperature
•The sensor temperature is below the temperature range.

AAA

Acid
•The sensor was not empty when zero-setting was attempted.
•Calibration was attempted with something other than the calibration solution.

HHH

Acid
•The sample measured outside the measurement range.
Temperature
•The sensor temperature is above the temperature range.

Specifications

Measurement range	Acid Low Acidity Citrus 0.10 to 4.00% High Acidity Citrus 2.50 to 8.80% 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 Ambient temperature range Measurement time Backlight Power supply	10 to 40°C 10 to 40°C Approx. 3 seconds The backlight stays on for 30 seconds after any button is pressed. Two (2) AAA alkaline batteries
Resolution	Acid 0.01% 0.1°C	International Protection class	IP65
Measurement accuracy	Acid ±0.10% (0.10 to 1.00%) Relative precision ±10% (1.01% or more) ±1°C	Dimensions and weight	55(W)×31(D)×109(H)mm, 100g (main unit only)
Output	NFC Forum Type 4 Tag	ISO/IEC 14443 Type A	
Output category	Date Time, Acidity [%], Temp [degC]		
Acidity scale	(e.g.) 2019/01/17 09:30:45, 0.24 21.3		

Inserting Batteries

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

O-ring

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

2.Insert two batteries.

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.

Groove

Open Close

About the Digital Scale

NoteRemove the tape from the battery compartment.

Contents

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

Parts

Back Front

Battery compartment

LCD
UNIT
[g, oz, ozt, dwt, ct, gn]

Zero-set (tare) button
Press to zero-set the scale (tare).

POWER Button UNIT Button This button is not used.

Select a unit readout.

How to Use the Digital Scale

1. Press the POWER Button. "0" will appear.

2. Check the unit readout. Press the UNIT button and select "g."

3. Place the item you wish to weigh onto the scale. The item's weight will appear on the scale.

Zero-setting and Weighing

1. Press the POWER Button. "0" will appear.

2. Place the beaker on the scale. The beaker's weight will appear on the scale.

3. Press the Zero-set button (tare). "0" will appear.

4. Pour the sample you wish to weigh into the beaker. The sample's weight will appear on the scale.

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.

•Use between 10 to 30°C only.

•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.

•Do not expose the scale to any type of moisture.

•Use in a dry, clean environment.

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

About Data Transmission Function

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.

2017/08/17 09:30:45, 12.3, 20.4
2017/08/17 09:30:50, 12.3, 20.4
2017/08/17 09:30:55, 12.4, 20.4

Measurement results are recorded with time stamps.

Android devices / iPhone

Example of data history

Laptop or PC + USB NFC Reader/Writer

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)."

2017/08/17 09:30:45	0.00	20.5
2017/08/17 09:31:50	0.21	20.4
2017/08/17 09:32:12	0.30	20.4
2017/08/17 09:34:26	0.30	20.4
2017/08/17 09:43:07	AAA	20.4
2017/08/17 09:43:18	OOO	20.3
2017/08/17 09:45:39	HHH	20.3
2017/08/17 09:46:07	0.28	LLL

Example of data history read out

LLL : Lower limit error.
HHH : Upper limit error.
AAA : Zero setting error or Calibration error.
OOO : Zero setting complete.
CCC : Calibration Complete.

A0135897
667937E581

Back side of the body
Instrument's serial number
UniqueID = 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.

While powered on... (Example image)

(memo) Reset the date and time when batteries are removed for 24 hours or more.

10's place 1's place 10's place 1's place 10's place 1's place 10's place 1's place

→ Year → Year → Month → Day → Day → Hour → Minute → Minute

Press the START button and ZERO button for more than 2 seconds

Press the ZERO button until the desired number is displayed.

Pressing the ZERO button will change the number.

0-9 0-9 01-12 0-3 0-9 00-23 0-5 0-9

Top right screen display during date and time set up

Year : 99 Month : 12 Day : 31 Hour : 24 Minute : 50

* For "time", set the time in 24 hour notation (Seconds : Fixed 00)

End

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 "R button" at the bottom portion of the PAL then bring in contact.

* Do not move it. (Hold for 1 second or more.)

* 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 "R button" is) of PAL in contact with the NFC mark on the IC card reader/writer.

* Do not move it. (Hold for 1 second or more.)

* 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.

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.)

(memo) Data history can be read out while PAL is powered off.

(memo) Data history readout will not delete the stored data history.

Delete data history

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.

While powered on...

(Example image)

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.

2. Press the START button. Delete data history

Press the ZERO button. End without deleting the data history.

If not deleting the data history.

0 second 1 second 2 seconds 3 seconds

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

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 and/or sample stage

•Water damage or having been dropped

•Leakage from batteries other than those included with the unit

•Having been misused and/or operated outside the environmental specifications

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.

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