

## How to Get Extended Warranty 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

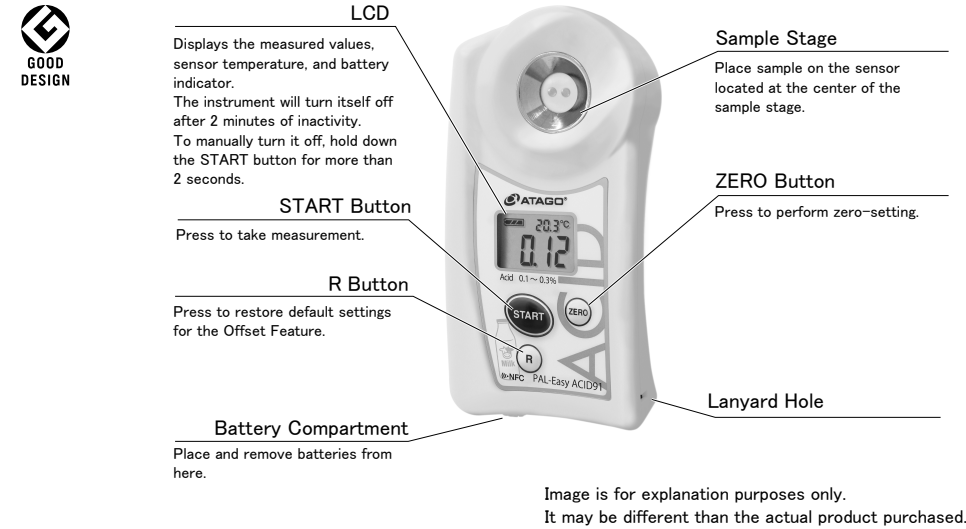
# Pocket Acidity Meter (Milk) PAL-Easy ACID91

Master Kit

Cat. No. 7391

ATAGO®  
Instruction Manual

## Parts



## Contents

Main unit...1 Inspection Certificate...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

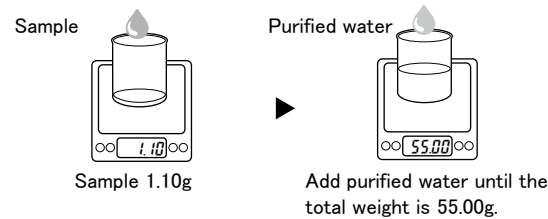
ATAGO instruments are rigorously inspected to ensure each unit meets the highest standards of quality assurance.

## Instrument

The instrument measures the acidity (%) in the 1:50 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 dilution  
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.  
<example>



## Measurement Value

This unit measures and determines the acidity through electrical conductivity. Lactic acid is the primary acid found in Milk. The instrument measures the total acidity in a sample and converts it into lactic acid concentrations.

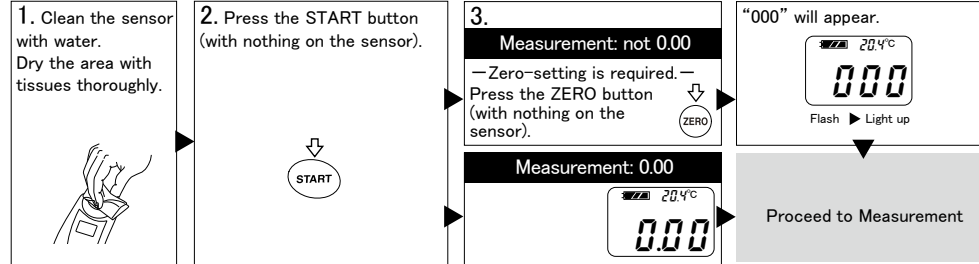
## Automatic Temperature Compensation

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.

## Zero-setting and Measurement

### Preparation

#### Zero-setting

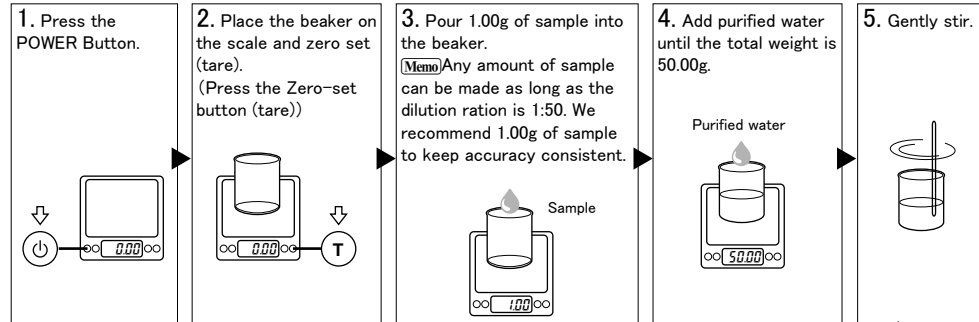


**Note**Recommended on a daily basis.

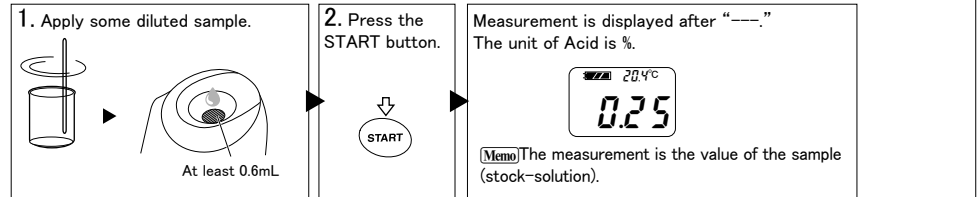
### Measurement

#### [1]Dilution About the Digital Scale

**Memo**Necessary Materials : Digital scale, Beaker 100mL



#### [2]Measuring the Acidity



### 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.

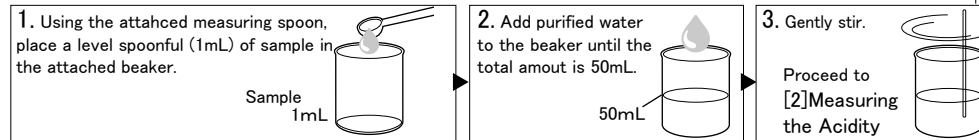
### Addendum

#### Measuring Without using a Scale

For approximate measurement only

#### [1]Dilution

**Memo**Necessary Materials : Measuring spoon 1mL, Beaker 100mL

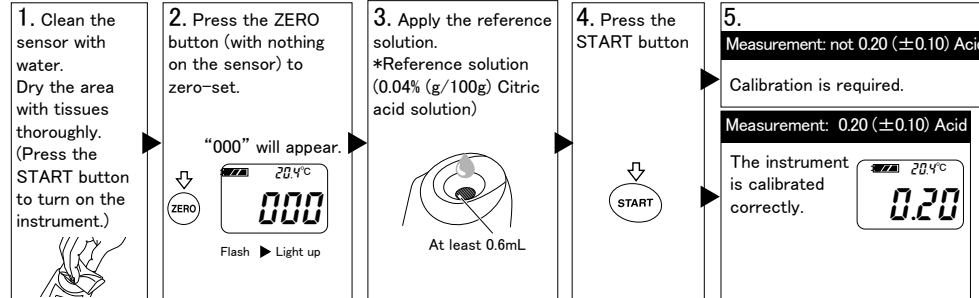


## Checking with Reference Solution

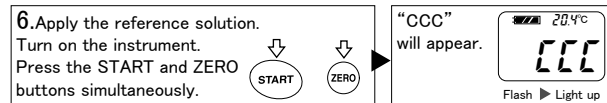
When there is any doubt regarding accuracy of measurement results, adjust the reference value according to the following procedure.

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

### Checking with Reference Solution



### Calibration



## Acid: Offset Function

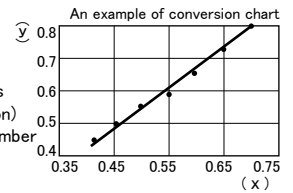
### Discrepancies with titration

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

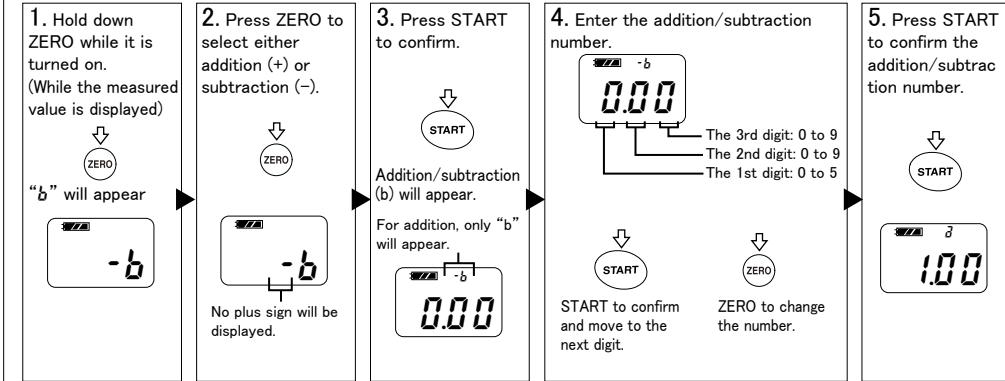
Create a conversion chart between the two testing methods.

$$y = a x + b$$

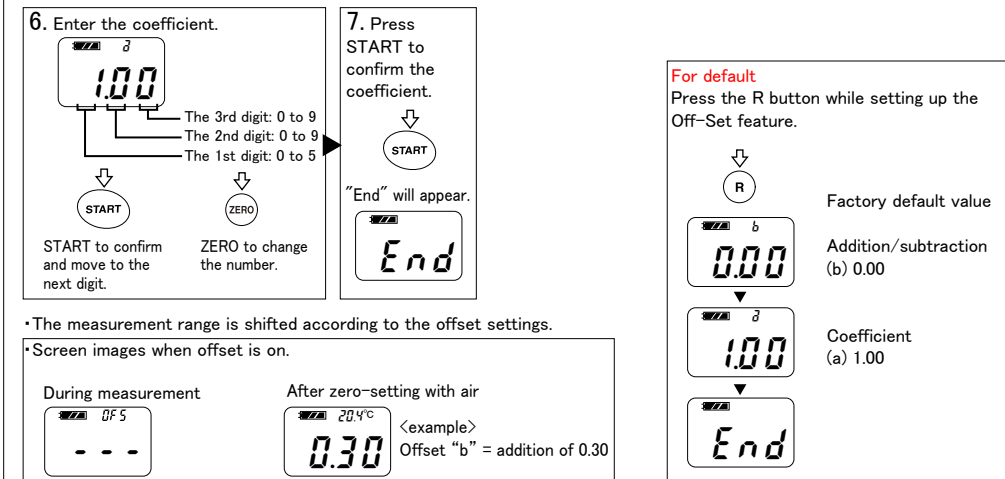
y: titration readings  
x: The instrument readings  
a: coefficient (multiplication)  
b: addition/subtraction number



### For addition/subtraction (b) [Range: -5.00 to 5.00]



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



• The measurement range is shifted according to the offset settings.

• Screen images when offset is on.



## 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.
- XXX** Acid  
• The sample measured outside the measurement range.  
• The sensor temperature is above the temperature range.

## Specifications

Measurement range	Acid 0.10 to 0.30%	10.0 to 40.4°C
Resolution	Acid 0.01%	0.1°C
Measurement accuracy	Acid ±0.10%	±1°C
Measurement time	Approx. 2 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, Acidity [%], Temp [degC]	
Acidity scale	(e.g.) 2019/01/17 09:30:45, 0.24 21.3	
Automatic temperature compensation range	10 to 40°C	
Ambient temperature range	10 to 40°C	
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)	

