# OPERATION MANUAL

Detachable long tube
spear shaped tip
pH pen
w/protection shield

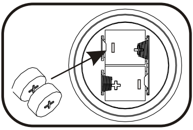

*Spear shaped tip pH pen designed for meat, dough and cheese.*

CE

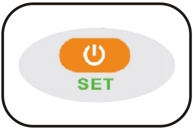
# QUICK GUIDE

1.Rotate and remove the storage buffer bottle. Check if the glass is intact and moist, reference junction fiber is clean.

2.Open the top cover and install 4pcs LR44 batteries.



3.Press the power button to turn on the device, then proceed with the test. For accurate result, do calibration first (page 8)




4.Submerge the probe about 4 cm (1.5”) into the test liquid. Let it sit for 5 minutes to reach temperature equilibrium, then gently shake it for 1 minute till “ **pH** “ icon stop flashing to obtain the final measure.


5.Refer to page 11 for cleaning after use.

**Cleaning**
after use

# INTRODUCTION

Proper use and maintenance of this product ensure accurate measurements and an extended service life. This is the market's first long-tube, spear-shaped tip pH pen, equipped with a food-grade plastic protective shield, designed for measuring the pH of various foods such as meat, dough, cheese and yogurt.

Please read the manual completely before using this meter. Filing and keeping the manual for future reference.

- Spear shaped tip and detachable long probe, perfect for food testing
- Tip shield for enhanced protection
- Lightweight and ergonomic, great for on-the-go testing
- Electrode status reminder
- Stability indicator
- Easy calibration up to 3 points
- IP67 Waterproof housing
- Data hold to freeze readings
- Low battery indicator
- Auto power off.
- C/F unit switchable.
- Power by 4pcs LR44 batteries

# MATERIAL SUPPLIED

This package contains:

✓The meter x 1
✓LR44 button battery x 4
✓Operation manual x 1
✓Wrist strap x 1
✓Paper box x 1

# POWER SUPPLY

The meter is powered by 4 LR44 batteries.
Check battery status when:

1. First time use
2. The battery symbol appears on LCD
3. The meter can not power on

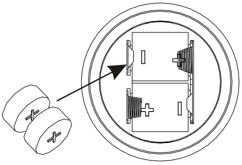
To install the batteries:

1. Turn off the meter.
2. Loose the battery cover in counter-clockwise direction.
3. Replace the old batteries with four new button cells LR44.
4. Make sure the batteries are in place and the polarity is correct.
5. Put back the battery cover and turn it tightly in clockwise direction.

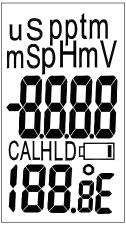
**<u>NOTE:</u>**

**1. Suggest to re-calibrate the meters after changing batteries.**

**2. Remove battery from instruments that you do not plan to use for a month or more. Do not leave battery in instrument.**



# LCD DISPLAY




-The 1st display shows the measured pH reading.
-The 2nd display shows the temperature reading (degreeC or degree F)
-Cal=Calibration mode
-HLD=Data hold
-Battery icon to indicate low power
-uS/ppt/ppm/mS/mV are invalid units in this pH pen

# KEYPAD

**HOLD**
-Press to freeze the current reading.
-Press again to release hold.
-Press to adjust while in setting or calibration mode.

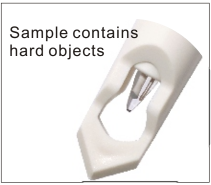
**CAL/↵**
-Press and hold to enter calibration.
-Press to save and enter next step while in setting mode
-Press to adjust while in calibration mode

**SET**
-Press to power on/off the meter
-Press >2 second to enter setting mode before power on.
-Press with “**HOLD**” key to disable auto sleep function before power on.

# OPERATION

1. Remove the semi-transparent storage bottle to expose the electrode.

Using the pen with or without the protective tip shield will not affect accuracy. If the sample volume is small, the shield can be removed for easier operation. However, if the sample contains hard objects, such as **meat bones**, keep the protective shield on.

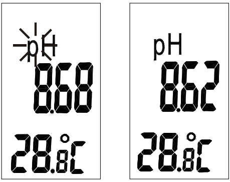




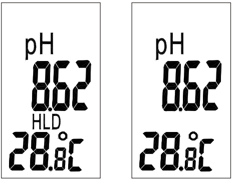
2. Insert the electrode into the test sample. At least 4cm deep to cover the fiber junction is required. If sample volume is too little, you may remove protect shield but still have to make sure the fiber junction contact with sample.

   Press " ⏻ " to power on the meter and wait for 1 minute to get a stable reading.


3. "**pH** "flashes while the meter is in measuring status. The LCD shows the measured pH and temperature.
   "pH" stop flashing indicates the reading is stable.



4. Press " HOLD " key to freeze current readings. "HLD" appears on the LCD. Press " HOLD " key again to release.




5. Turn off the meter by pressing " SET " button.

6. Once finishing the measurement, clean the electrode, put back the electrode storage buffer bottle cap.

   **WARNING: Please always make the pH electrode wet to keep the electrode in a good storage condition.**

7. Read page 11 for probe cleaning.

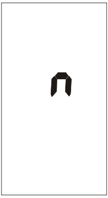
8. Read page 8 for the calibration.

9. Read page 6 for the setting program.

## AUTO POWER OFF (SLEEP FUNCTION)

This meter will shut off automatically 20 minutes of inactivity. For operating longer time, you can disable the sleep mode.

To disable the auto power off:
Before power on, pressing " SET " +" HOLD " keys simultaneously until a "**n**" appeared on the screen and then release keys to return to normal mode.




**Note: The disable sleep mode will be invalid after every power off.**

# PARAMETERS SETTING

Parameters setting function could help you to check or program your meter.

When meter is off, press “ SET “ key >1 sec. to enter setting mode.

## Probe slope and offset value

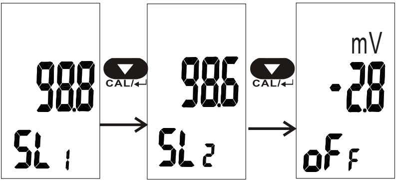
After re-calibration, check probe slope and offset value could help to confirm the necessity to replace the probe.

While doing 3 points calibration, two available slope values and one offset point.
Range 1( SL1): 0.00 to 2nd point
Range 2 (SL2): 2nd point to 14.00pH.
Offset point is at pH7

Whiling doing 1 or 2 points calibration, the slope value SL1 equals to SL2. The offset point is still at pH7.

Be sure to change probe while the slope value is <75 or >115 (The unit is %). While the offset value is out of -60mV~+60 mV, change the probe as well.

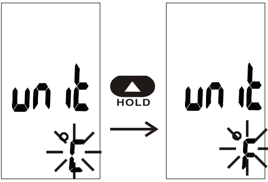
When meter is off, press “ SET “ key >1 sec. to enter setting mode. SL1 value will appear on LCD. Press “ CAL/↵ “ key to view the SL2 value. Press “ CAL/↵ “ key to view the offset value.




Qualified range:
slope: 75%~115%
offset: -60mV~+60mV

## Temp. Unit Setting

To select the temp. unit (°C or °F), enter the setting mode first.
When meter is off, press “SET“ key >1 sec. to enter setting mode.
Press “CAL/↵“ to scroll and find unit setting. Default unit flashes on LCD.
Press “HOLD“ to change and press “CAL/↵“ to confirm.

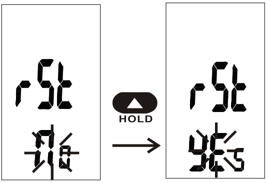



## Reset to default setting

To reset the meter to default setting, enter the setting mode first.

When meter is off, press “SET“ key >1 sec. to enter setting mode.

Press “CAL/↵“ to select reset. Default “no” flashes on LCD.
Press “HOLD“ to change and press“CAL/↵“ to confirm.



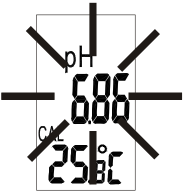

Before calibration, recommend to RESET the meter to delete all the old calibration information.

# CALIBRATION MODE (CAL)

Calibration is necessary and should be done regularly, recommended everyday if the meter is used often. The unique calibration design of the meter features automatic buffer recognition to avoid errors.

1. Rinse the probe thoroughly with de-ionised water or rinse solution. Do not wipe the probe glass tip as this will cause a build-up of electrostatic charge on the glass surface.
2. Power on the meter.
3. Dip the probe into the standard calibration buffer. The end of the probe must be completely immersed into the sample. Stir the probe gently to create a homogeneous sample. Wait till “PH” icon stop flashing. Suggest to calibrate pH7 first and then 4 or 10 pH for better accuracy result.
4. Press " ▼ CAL/↵ " key more than 1 second to enter calibration mode. The "**CAL**" icon, the auto recognized buffer value (see below table) and “pH” will all flash on primary LCD.

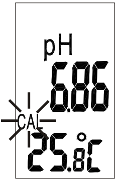
| | Designed for NIST buffer | | |
|---|---|---|---|
| Temp.(°C) | pH4.01 | PH6.86 | PH9.18 |
| 0 | 4.01 | 6.98 | 9.47 |
| 5 | 4.01 | 6.95 | 9.38 |
| 10 | 4.00 | 6.92 | 9.32 |
| 15 | 4.00 | 6.90 | 9.27 |
| 20 | 4.00 | 6.88 | 9.22 |
| 25 | 4.01 | 6.86 | 9.18 |
| 30 | 4.01 | 6.85 | 9.14 |
| 35 | 4.02 | 6.84 | 9.10 |
| 40 | 4.03 | 6.84 | 9.07 |
| 45 | 4.04 | 6.83 | 9.04 |
| 50 | 4.06 | 6.83 | 9.01 |




5. If the probe is damaged or the buffer you use is not specified as following or the buffer is no longer fresh and accurate, the primary LCD will keep flashing unless you escape by turning off the meter.

The acceptable pH buffer range:
-pH3.00~5.00
-pH6.00~8.00
-pH8.50~10.50

6. If the probe successfully recognizes the buffer, the buffer pH value stop flashing , only “CAL” flashes.




7. If your calibration buffer is not NIST, press " HOLD " or “ CAL/↵ “ to adjust the calibrating point to the corresponding buffer value of specific temperature. The adjustable range is : 3.00 to 5.00, 6.00 to 8.00, 8.50 to 10.50.

8. Wait for 30 seconds, the meter completes the calibration automatically if the reading is stable enough.

9. Rinse the probe with de-ionized water or a rinse solution (tap water...) after calibration. Repeat step 3 ~ 8 to do multiple point calibration or exit by turning off the meter.

# PROBE CHANGE

Suggest to change probe when:

1. Slow response
2. Unstable reading
3. Slope value is <75% or >115% or the offset value is out of -60mV~+60mV

Purchase the compatible pH probe from the store where you bought the pH pen.

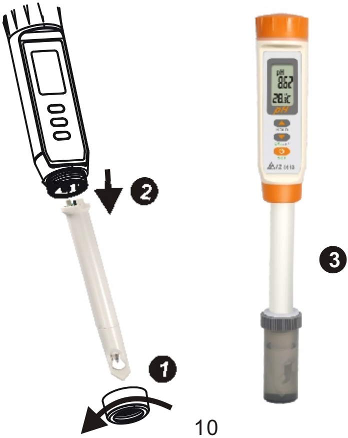
Three steps to change the probe:

Step1: Loose the washer

Step2: Unplug the probe

Step3: Reverse steps to install new probe

**NOTE: Be sure to calibrate the meter after changing the probe.**



# CLEANING & STORAGE

First, while you get the new meter, make sure the pH electrode glass is intact, clean and wet.

Often calibrate with standard solutions to ensure accuracy. Prevent buildup of residue and check for damage after each use.

pH probe is sensitive that requires care to ensure accurate measurements and long-term functionality. Follow these guidelines:

1. Cleaning
Avoid scratching. Never rub the electrode with abrasive materials or cloths. It is essential to clean the electrode regularly:
**After Each Use** Rinse the electrode with distilled water to remove residual solution.
**For General Cleaning** Clean the electrode by using mild soapy water.
**For Protein Contaminants** Use a protein cleaning solution (such as Pepsin).
**For Oil or Grease Residues** Use an alcohol-based solution.

2.Check for Damage
Inspect the electrode for cracks or leaks; replace it if necessary.

3. Re-conditioning
Soak in 0.01M HCl to re-condition the electrolyte once a month for 1 hour to prolong probe life time.

4.Storage
Proper storage prevents electrode damage and ensures readiness for future use
**Keep the Electrode Hydrated**, soak in a storage solution for at least an hour before use.
**Avoid extreme temperatures** Direct sunlight, exposure to high heat or freezing temperatures can damage the electrode.

**Use pH electrode storage solution** not in distilled or deionized water, as this can degrade the electrode.
**Store in an Upright Position** to prevents leakage and prolongs the life span of the sensor.

# TROUBLESHOOTING

**Power on but no display**

1) Make sure the time of pressing power key is more than 0.3 sec.
2) Check the battery are in place and make good contact and correct polarity.
3) Replace new batteries again.
4) Move away the batteries for one minute and then put back again.

**Slow response**

1) Clean probe by immersing the electrode in protein cleaner (pepsin) for 1 hour, then rinse thoroughly with distilled water
2) Replace a new probe.

**Big difference from previous measure**

The most important principle in trouble-shooting is to isolate the components of the system and check each in turn.
The components of the system include water resistance, probe, testing sample and technique.
1. Water Resistance
This device is not designed to be used under water. The probes can be submerged in an aquatic environment for some minute, not designed for long-term immersion application.
2.Probe
First, rinse the probe thoroughly with distilled water, blot it dry with a lint-free tissue and inspect the glass spear is intact and clean.

Doing calibration first to see if this issue could be improved. If not, please purchase a new probe

3.Testing sample

If the probe works properly in standards but not in the sample, look for possible interferences or substances in the sample that could alter the probe response or physically damage the probe. If possible, determine the composition of the sample and check for issues.

4.Technique

Check if the method of this analysis is compatible with your sample.

### ◆ ••• **appears while power is on**

Probe is disconnected or faulty. Please unplug and reconnect the probe. If the issue persists, consider replacing the probe with a new one.

### ◆ **Unstable reading**

1)Stir it to make a homogeneous solution.
2)Make sure electrode is completely immersed in solution.
3)Clean probe and re-calibrate.
4)Replace a new probe
5)Move to anther room and try again.

### ◆ **The reading is changeless**

Check whether the reading is hold?
Press “ ▲ HOLD “ key to unlock the reading.

## Error Code

E02:The value is below the lower limit
E03:The value is over the upper limit
E04:The Temp. error results in this error.

E13:Slope or offset value of pH probe is out of the range
Solution: Re-calibrate or replace a new probe or replace calibration buffer

NOTE: While doing calibration, ignore E13 before you completing 3 points calibration.

E31:Measuring circuit failure
Solution: Power on meter for times, if error still appears, send back for repair

E32:Memory saving/reading failure
Solution: Power on meter for times, if error still appears, send back for repair

E33:Reference voltage failure
Solution: Power on meter for times, if error still appears, send back for repair

## What to do if you spill storage buffer?

The pH probe should be stored in pH storage solution. If the solution is spilled, tap water can be used temporarily, but it is essential to refill the storage solution a.s.a.p..

## White crystals

White KCL crystals may be present on the electrode. It is normal and these crystals will dissolve while soaking the electrode or they can be rinsed away with tap water.

# SPECIFICATION

| Model | |
|---|---|
| pH range | 0.00~14.00 |
| pH accuracy | +/-0.1 |
| pH resolution | 0.01 |
| Temp. range | 0~70.0℃ |
| Temp. accuracy | +/-1℃ |
| Temp. resolution | 0.1 |
| ATC | ATC |
| LCD size | 30(H)x18(W)mm |
| Operating temp. | 0~70℃ |
| Operating RH% | Humidity<80% |
| Storage temp. | 0~60℃ |
| Storage RH% | Humidity < 90% |
| Sensor life time | >6 months (with good maintenance) |
| Dimension | 290(L)x39(W)x39(H)mm |
| Weight | 110g |
| Battery | LR44 x 4pcs |
| Optional | Detachable pH electrode |
| Standard Package | Meter/Battery/Manual/ Wrist strap/Paper box |

# WARRANTY

The meter is warranted to be free from defects in material and workmanship for a period of one year from the date of purchase. This warranty covers normal operation but does not cover battery, misuse, abuse, alteration, tampering, neglect, improper maintenance, or damage resulting from leaking batteries. Proof of purchase is required for warranty repairs . Warranty is void if the meter used to be taken apart.

# RETURN AUTHORIZATION

Authorization must be obtained from the supplier before returning items for any reason. When requiring a RA (Return Authorization), please include data regarding the defective reason, the meters are to be returned along with good packing to prevent any damage in shipment and insured against possible damage or loss .

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Hygrometer/Psychrometer
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Sound Level Meter
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Infrared Thermometer
K type Thermometer
K.J.T. type Thermometer
K.J.T.R.S.E. type Thermometer
pH Meter
Conductivity Meter
T.D.S. Meter
D.O. Meter
Saccharimeter
Manometer
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Moisture Meter
Data logger
Temp./RH transmitter
Wireless Transmitter ..........

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**2025/03 V1.0**