Kalstein

Serie YR01824 / YR01824-1

Benchtop pH Meter

Instruction Manual

Thank you very much for purchasing our Serie YR01824 / YR01824-1 Benchtop pH Meter.

Please read the “Operating Instructions” and “Warranty” before operating this unit to assure proper operation. After reading these documents, be sure to store them securely together with the “Warranty” at a hand place for future reference.

 Warning: Before operating the unit, be sure to read carefully and fully understand important warnings in the operating instructions.

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Name and model

Benchtop pH Meter YR1824 / YR1824-1

Use

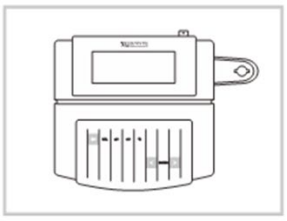
This manual provides a step-by-step guide to help you operate the meter, please carefully read the following instructions before use.

Unpacking

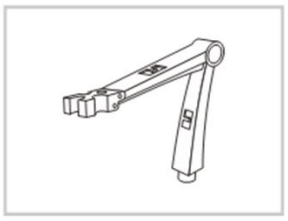
Before unpacking, ensure that the current work environment meets following conditions.

- Relative humidity is less than 80 %.
- Ambient temperature is greater than 0°C and less than 60°C.
- No potential electromagnetic interference.

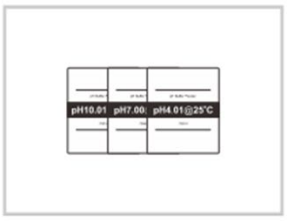
The following list describes the standard components of the meter. After the unpacking, please check all components are complete. If any are damaged or missing, please contact nearest distributor.



PHS-W pH Meter



Electrode Arm



pH Buffer Pouches

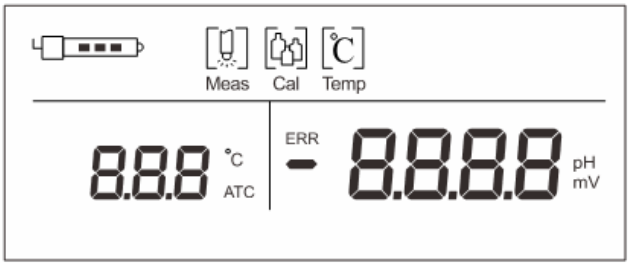
pH Electrode

TP-100K Temperature Probe
(Only for PHS-3BW)

DC9V Power Adapter

Display

The Kalstein´s YR1824 Series Benchtop pH Meter is equipped with an easy-read LCD display that used to show measured values and mode icons. The following table describes the function of each icon.



INDEX:

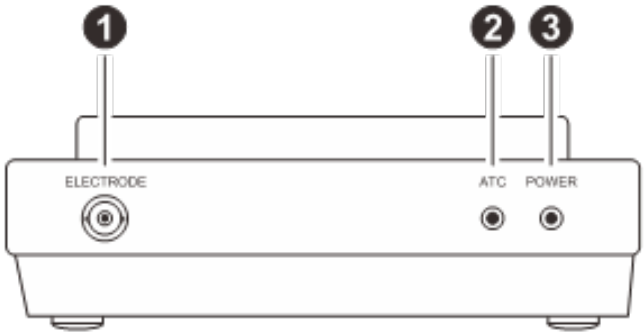
Meas	Measurement mode icon: Indicates the meter is in the measurement mode.		Electrode slope icon: Indicates the average slope of the pH electrode.
Cal	Calibration mode icon: Indicates the meter is in the calibration mode.	ERR	Error alarm icon: Indicates the pH buffer or electrode has expired.
Temp	Temperature setting icon: Indicates the meter is in the temperature setting mode.	ATC	Automatic Temperature Compensation: Indicates the temperature compensation is enabled.

Keypad

The meter has a succinct membrane keypad, names and symbols describe the each function key controls.

KEY	FUNCTION
ON	Switches the meter ON/OFF
CAL	Starts calibration
pH	Enters the pH measurement mode
mV	Enters the mV measurement mode
°C	Sets the temperature
◄	Increase the setting value
►	Decrease the setting value
ENTER	Confirms the calibration or settings

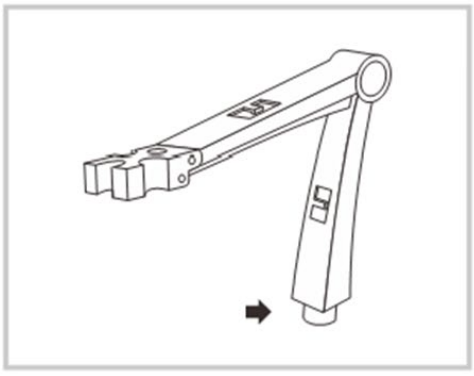
Connectors

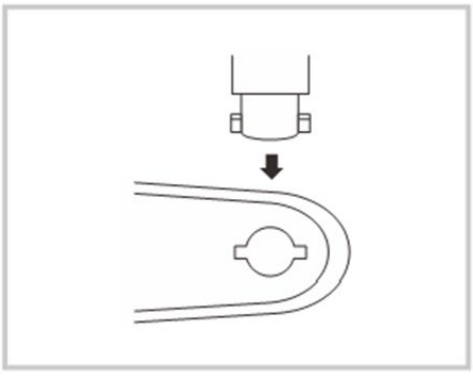


NO.	CONNECTOR	DESCRIPTION
1	ELECTRODE	Used for connecting the pH or ORP electrode
2	ATC	Used for connecting the temperature probe (Only for PHS-3BW meter)
3	POWER	Used for connecting the power adapter

Installing the Electrode Holder

Take out the electrode arm from the packaging. The base plate of the electrode holder has a circular hole, the electrode arm has a connecting rod. Insert the connecting rod into the circular hole and swivel the electrode arm 90o. Electrode holder is now ready to swing into desired position.

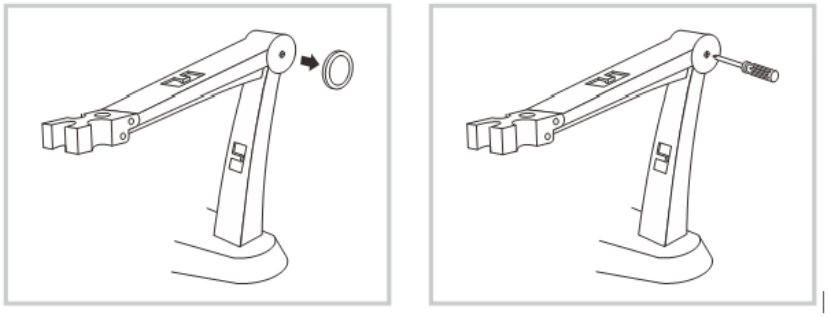




Adjustment of electrode arm

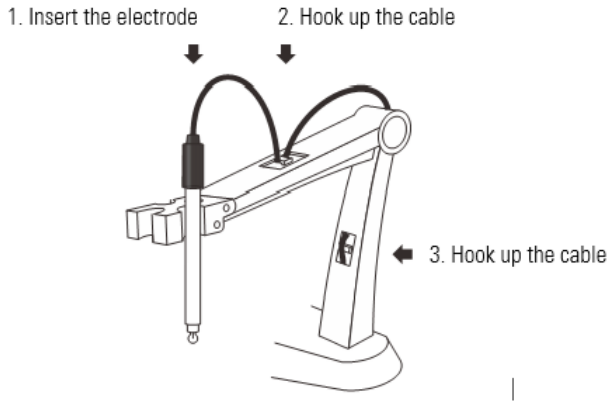
After installation, if the electrode arm automatically rises or falls, you need to adjust the screws until arm locate at any position.

1. Remove the plastic cover from the electrode arm.
2. Use the screwdriver to tighten the screw moderately.
3. Insert the plastic cover to previous position. Installation is completed.



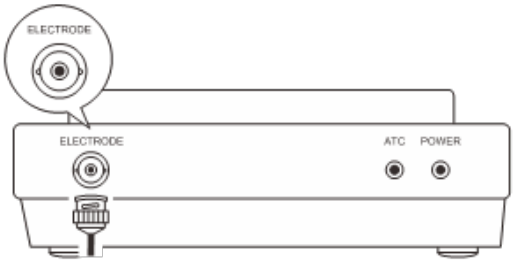
Connecting the Electrode

1. Take out the pH electrode from the packaging. Follow the steps below to place the electrode into left or right side of the electrode arm.



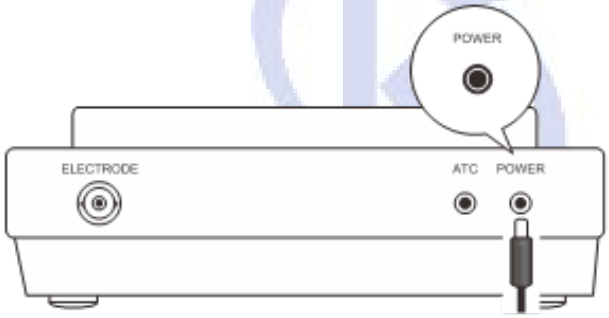
2. Insert the BNC connector into the connector socket labeled ELECTRODE. Rotate and push the connector clockwise until it locks. After the connection is

completed, DO NOT pull on the cable. Always make sure that the connector is clean and dry.



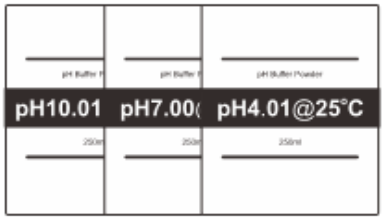
Connecting the Power Adapter

1. Before plugging in the power adapter, ensure that its voltage matches the local main voltage.
2. Insert the connector to the power socket. The meter is now ready for use.



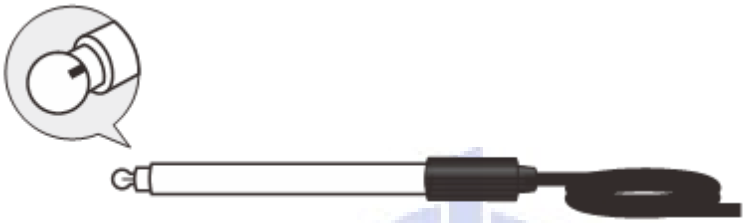
Preparing the pH Buffer Solutions

- Open the pH7.00 buffer packet, place the reagent into a 250ml volumetric flask. Pour the distilled water 250ml to scale line, mix the solution until the reagent is completely dissolved.
- Preparation of pH4.01 and 10.01 standard buffer solutions are the same as above. Prepared standard buffer solutions should be stored in hermetically sealed glass containers.



Prior to Use

- Remove the protective cap from the bottom of the pH electrode.
- If the glass sensitive membrane has dried out, soak the electrode in 3M KCL solution (pH adjusted to 4.0) for at least 15 minutes.



Switching the Meter On and Off

- Press the ON key to switch on the meter, the display shows the measured values.
- Press and hold the ON key for 5 seconds, the meter will switch off.

Temperature Compensation

For better accuracy, we recommend that using a temperature probe for the calibration and measurements

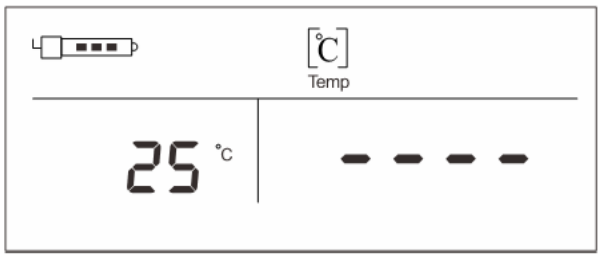
- Manual Temperature Compensation

1.1 Use a high-accuracy thermometer to measure the temperature of sample.

1.2 Press the ºC key to enter the temperature setting mode.

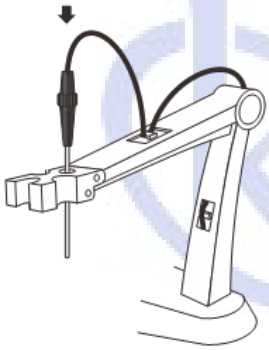
1.3 Press the t or u key to set the temperature value.

1.4 Press the **Enter** key to confirm, the meter returns to the measurement mode. Setting is completed.

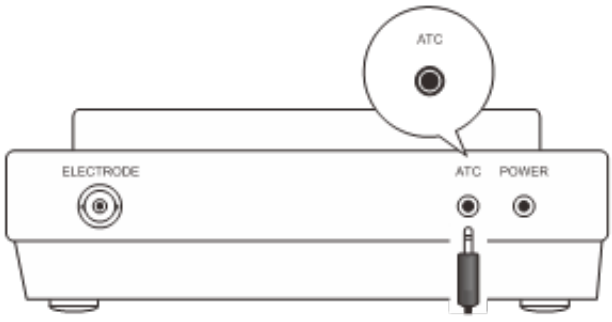


- Automatic Temperature Compensation (Only for YR01824-1 meter)

2.1 The YR01824-1 pH meter is supplied with a TP-100K temperature probe. Place the temperature probe into the circular hole of the electrode arm.



2.2 Insert the phone plug to the connector socket labeled ATC. Ensure the connector is fully seated. When the connection is done, the ATC icon will show on the display. The meter is now switched to the automatic temperature compensation mode.



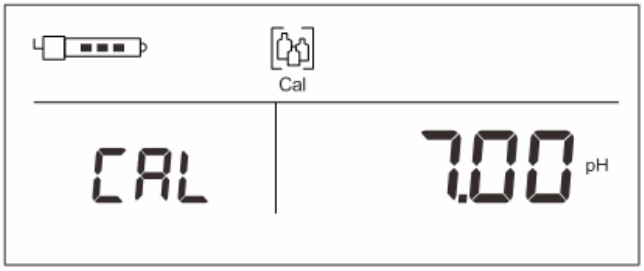
pH Calibration

The YR1824 series pH meter can perform 2 points calibration. The first calibration point must be pH7.00. If your sample is belong to acidic substances, select the pH4.01 buffer solution as second calibration point, if the alkaline substances, select the pH10.01 buffer solution. The meter will automatically recognize and calibrate to following standard buffer values.

USA Standard Buffers	pH4.01, 7.00, 10.01 (Default)
NIST Standard Buffers	pH4.01, 6.86, 9.18

The meter must be calibrated prior to first use or new electrode replaced. To ensure accuracy, regular calibration is recommended. DO NOT reuse the pH buffer solution after calibration, contaminants in solution will affect the calibration and eventually the accuracy of the measurement

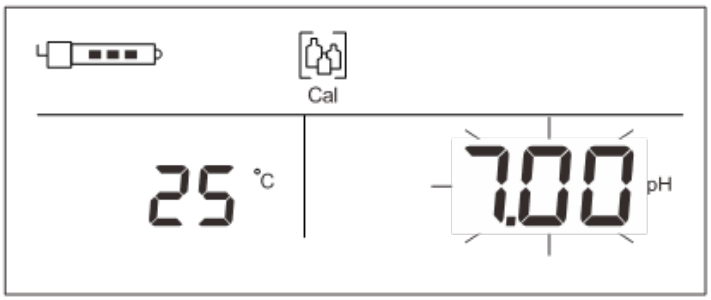
1. Rinse the pH electrode with distilled water. Press the **Cal** key, the meter enters the calibration mode, the display shows “CAL/pH7.00”.



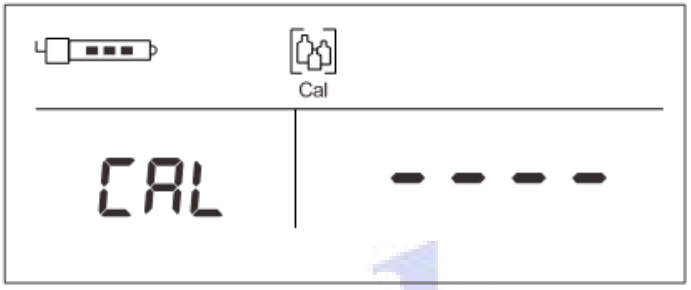
2. Place the pH electrode into the pH7.00 standard buffer solution, the end of the electrode must be completely immersed into the calibration solution. Stir the electrode gently to create a homogeneous solution.

3. Press the **Enter** key, the meter begins the calibration. Wait for the reading to stabilize, the displayed value will flash 3 times indicating that the first calibration

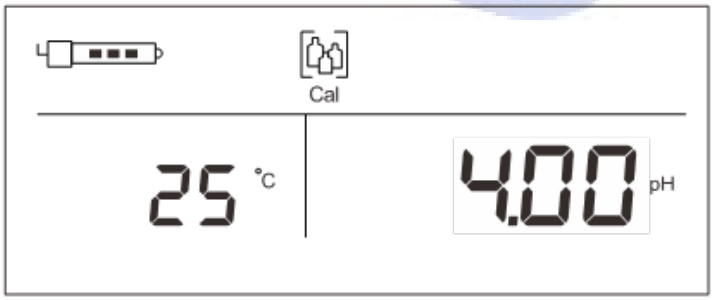
point is completed.



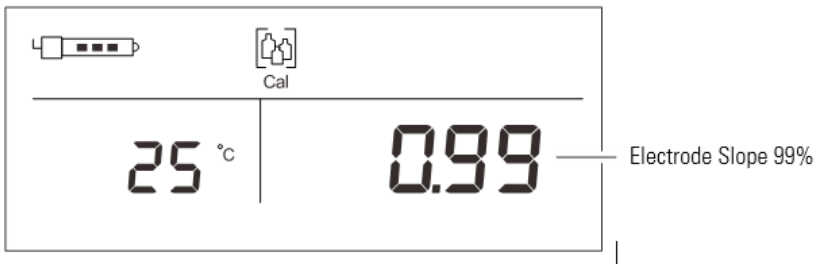
The display automatically shows “---" and waits for calibrating the second point.



4. Rinse the pH electrode with distilled water. Place the electrode into the pH4.01 (or 10.01) standard buffer solution. Press the Enter key, the meter automatically recognizes the pH buffer solution and begins the calibration (e.g., pH4.01)



5. Wait for the reading to stabilize, the displayed value will flash 3 times, the meter automatically shows electrode slope and returns to the measurement mode. Calibration is completed.



ⓘ

- The electrode icon shows the average slope of the pH electrode when the calibration is completed. If the slope or calibration result does not meet the measurement requirements, the icon will disappear on the display.
- If the meter shows Err on the display, please check the pH electrode and ensure the pH buffer solutions are fresh and uncontaminated.
- If you want to exit the calibration, press the pH key.

Measurement

- pH

1 Press the pH key to enter the pH measurement mode.

2 Rinse the pH electrode with distilled water to remove any impurities adhering to the probe body.

3 Place the electrode into the sample solution, stir the electrode gently.

4 Record the measured value when the reading is stable.

- mV

1 Press the mV key to enter the mV measurement mode.

2 Rinse the electrode thoroughly with distilled water.

3 Place the electrode into the sample solution, stir the electrode gently.

4 Record the measured value when the reading is stable.

pH Electrode Care and Maintenance

Since pH electrode is susceptible to dirt and contamination, clean as necessary depending on the extent and condition of use.

- After measuring: rinse the electrode in distilled water, store the electrode into the 3M KCL solution.
- Salt deposits: soak the electrode in warm tap water to dissolve deposits, then thoroughly rinse with distilled water.
- Oil or Grease film: wash the glass sensitive membrane of electrode gently in some detergents and water. If necessary, using the alcohol to clean the sensitive membrane, then rinse with distilled water. Place the electrode in the 3M KCL solution for at least 30 minutes.
- Clogged reference junction: heat a diluted KCl solution to 60°C to 80°C. Place the electrode into the heated solution for about 10 minutes. Allow the electrode to cool in some unheated KCl solution.
- Protein deposits: prepare a 1% pepsin solution in 0.1M of HCL. Place the electrode in the solution for 10 minutes. Rinse the electrod with distilled water.

- Rectivating the pH Electrode:

If stored and cleaned properly, the electrode should be ready for immediate use. However, a dehydrated sensitive membrane may cause sluggish response. To rehydrate the sensitive membrane, immerse the electrode in a pH4.01 buffer

solution for 10 to 30 minutes. If this fails, the electrode requires activation.

1. Soak the electrode in 0.1M HCl for 5 minutes.
2. Remove and rinse with deionized water, then place in 0.1M NaOH for 5 minutes.
3. Remove and rinse again, and soak in 3M KCL solution for at least 30 minutes.

Specifications

pH	Model	YR1824	YR1824-1
	Range	0.00~14.00pH	
	Accuracy	±0.05pH	±0.01pH
	Resolution	0.01pH	
	Calibration Points	2 points	
	pH Buffer Options	USA (pH4.01/7.00/10.01), NIST (pH4.01/6.86/9.18)	
	Temperature Compensation	0~100°C, Manual	0~100°C, Automatic or Manual
mV	Range	-1999~1999mV	
	Accuracy	±10mV	±1mV
	Resolution	1mV	
Temperature	Range	---	0~100°C
	Accuracy	---	±1°C
	Resolution	---	1°C
General	Connector	BNC	
	Power Requirements	DC9V, using AC adapters, 220VAC/50Hz	
	Dimensions	210 (L) × 205 (W) × 65 (H)mm	
	Weight	1.5kg	

Troubleshooting

LCD DISPLAY	CAUSE	CORRECTIVE ACTION
- - -	Electrode dried out	Soak the pH electrode in 3M KCL solution at least 30 minutes.
	Measured value is out of range	Check the electrode whether clogged, dirty or broken.
ERR	Incorrect pH buffer solutions	Using the fresh pH buffer solutions for calibration.
	Electrode has expired	Replace the pH electrode.

Addendum 1: pH Electrode Selection Guide

The meter comes with a general purpose pH electrode that is used to measure the

pH of the liquids. If this electrode can not meet your measurement requirements, please refer to the table below to select an applicable probe.

Sample Type	P11	P12	P13	P15	P16	P18	P19	P21	E201	E202
Agar										•
Beer	•	•	•					•	•	•
Blood Products	•	•	•					•		•
Bread, Dough						•	•			
Cement	•									
Cosmetics	•	•	•					•	•	•
Dairy Products	•	•	•				•			•
Education	•								•	•
Fats/Cream							•			
Field Use						•			•	•
Fish Products							•			•
Lab Flasks		•								
Low Ionic	•			•				•		
Meat, Cheese							•			•
Micro Samples			•							
Paint		•	•							•
Photographic										
Soil						•	•			
Surface										•
Test Tubes		•			•					
Tris Buffer					•					
Viscose Samples										•

Addendum 2: How to select the pH buffer option

The Kalstein´s YR01842 series meter contains two pH buffer options, the factory default is USA. If you want to convert into NIST standards, please follow the steps below.

1. Press the **ON** key to switch on the meter.
2. Press and hold the **CAL** key and pull out the power adapter.
3. Insert the power adapter again. Undo the **CAL** key after 3 seconds.
4. Press the **ON** key to switch on the meter. Setting is completed.

Hazardous Substance Statement

We have an active manufacturing and procurement program to minimize and eliminate the use of harmful heavy metals such as cadmium, lead, mercury and the like. New technologies and design parameters are also promoting these efforts and we expect to have little or no such materials in our product in the coming years. We welcome our customer suggestions on how to speed up these efforts.

Warranty

The warranty period for meter is one year from the date of shipment. Above warranty does not cover the sensor and calibration solutions. Out of warranty products will be repaired on a charged basis. The warranty on your meter shall not apply to defects resulting from:

- Improper or inadequate maintenance by customer.
- Unauthorized modification or misuse.
- Operation outside of the environment specifications of the products.

For more information, please contact the nearest authorized distributor.