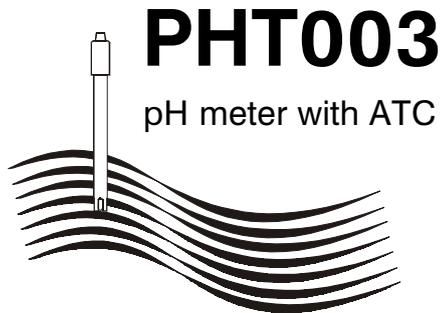
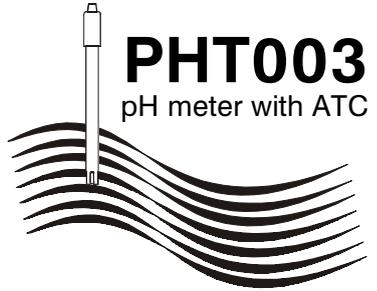


# USER'S GUIDE



**BULTEH 2000 Ltd.**





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## 1. GENERAL

### 1.1. Applications

pH measurements are performed in practically any laboratory:

- lacquers, paints, suspensions;
- molasses, jam, honey;
- small samples;
- non-aqueous solvents;
- surface measurements;
- ointments, creams and pastes;
- water samples;
- milk sample.

The PHT003 is delivered with a plastic body pH electrode, but you are entirely free to select each other suitable for your purposes electrode.

## 2. INTRODUCTION

### 2.1. PHT003 Front Panel and Controls

#### 2.1.1. Display

2 x 16-character, alphanumeric LCD display; backlight

#### 2.1.2. Switches



**ON/OFF** Power switch

**CAL** Calibration switch

**pH/mV** Function Switch -switches between pH, mV

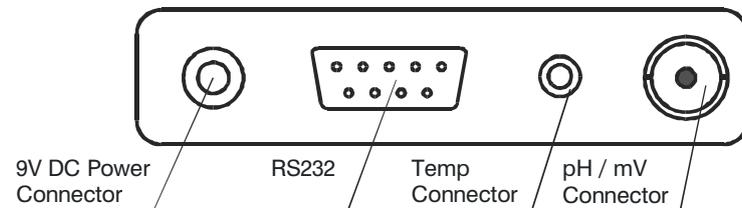


Print button

**HOLD** Button for freezing measured readings

**OK** Confirmation button

## 2.2. PHT003 Rear Panel and Connectors



**9V DC Power Connector** - Used to connect 9V AC/DC Adapter. The PHT003 can use any 9V DC source with at least 400mA output. The 9V DC connector has a positive tip.

**RS 232 Connector** - Used to connect the pH meter to the PC.

**Temp Connector** - Used to connect Temperature sensor. This sensor provides temperature readout as well as Automatic Temperature Compensation for pH readings.

**pH/mV (BNC) Connector** - Used to connect pH sensor.

## 2.3. Unpacking Information

Before using your new PHT003, please check that the following accessories have been included:

Description	Qty
1.PHT003 (pH-mV-Temperature) Instrument	1
2.Holder for pH electrode and temperature sensor	1
3.Temperature/ATC Sensor	1
4.Combination pH Sensor	1
5.Shorting cap (BNC)	1
6.Container with KCl 20 ml	1
7.Glass Beaker	1
8.CD (PHT003 software tools - pht003_01.exe)	1
9.RS232 Cable (Null Modem, Link cable)	1
10.AC/DC Power Adapter 9V	1
11.Bank for pH buffer solution (empty)	3
12.Buffer powder solution 250 ml pH 7.00 ± 0,01/25°C	1
13.Buffer powder solution 250 ml pH 4.01 ±0,01/25°C	1
14.Buffer powder solution 250 ml pH 10.01 ±0,01/25°C	1
15.User's guide	1
16.Carrying case	



## 2.4. Specifications

	Ranges	Resolution	Accuracy
pH	0 to 14.00 pH	0.01 pH	±0.02 pH
mV	0 to ±500 mV	0.01 mV	±0.05 mV
Temperature	00.0 to 120.0°C	0.1°C	±0.2 °C

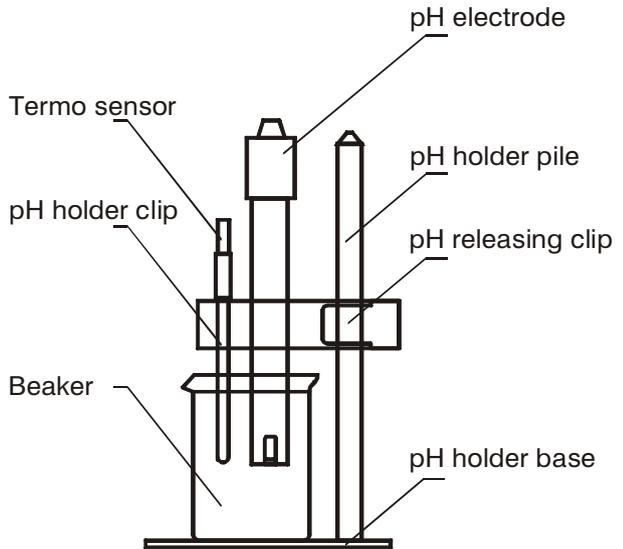
- Input Impedance :  $>3 \times 10^{12} \Omega$
- Temperature Compensation : 0 to 50.0 °C
- Power: 9V DC by AC/DC power adapter & four AA UM3 Mignon RA6 (LR 6) batteries (Rechargeable Alkaline batteries; 1,5 Ah; 5 years' shelf life)
- Dimensions: Instrument only: 155 x 92 x 54 mm
- Mass: Instrument only: Approx 0.380 kg
- Dimensions: Full Kit: 415 x 358 x 88 mm
- Mass: Full Kit: Approx. 2.8 kg
- Environment Temperature : 0 to 45 °C
- Humidity: 0 to 90 % R.H.
- Protection class IP20

### 3. OPERATING MODES

#### 3.1. Main

##### 3.1.1. Preparation for work

- a. Assembly pH Holder pile to the pH holder base by means of the screw M3 as it is shown to the figure.
- b. Mount the pH holder clip to the pile by pressing the releasing clip.
- c. Put the beaker.



##### 3.1.2. Connecting the pH electrode

During this operation, it is important that water does not get onto the BNC electrode connector. Also avoid touching the connector with soiled hands. Connect the pH Electrode sliding the Electrode connector over the socket (BNC Connector). Ensure that the slot of the connector is in the line with the protrusions of the socket. Rotate the connector clockwise until it locks. Be careful not to use excessive force in this operation.

##### 3.1.3. Connecting the temperature sensor to the temp connector

Connect the temperature probe to the phono jack on the rear PHT003 meter panel.

##### 3.1.4. Connecting power cable

Connect power cable to meter power jack and to AC power source. Press ON/OFF button to switch on the instrument.

##### Note:

- a. If you do not press pH meter buttons more than 10 minutes, it will be switched off automatically. If the instrument work in PC mode, this option is not available, because in this mode the pH meter follows a long time process and sends the readings to the computer program.
- b. The instrument can work with battery power supply 15 hours. The full batteries recharge time is 10 hours.
- c. Working with adapter the instrument recharge the batteries. There is not any risk of overcharge.

### 3.2. Measuring pH or milivolts

To measure pH with a conventional glass pH electrode, the meter uses a pH sensing glass bulb that is sensitive to hydrogen ions. The potential developed at the glass membrane is directly related to the pH of the solution. The glass electrode is paired with a reference electrode which completes the electrical measuring circuit and provides a stable reference point. These two electrodes are joined to create a combination electrode. The combination glass electrode is connected to the pH meter which reads the voltage, converts it to pH units, makes temperature correction and displays the result.

- a. Remove the wetting cap from the pH sensor. Rinse electrode and immerse the pH electrode and the temperature sensor in sample solution. Stir gently.
- b. Press ON/OFF button to switch on the instrument;
- c. Press pH/mV until the display indicates the appropriate measurement mode (pH or mV).

pH Meter
-------------

pH measuring mode

mV Meter
-------------

mV measuring mode

- d. Standardize the meter using up to three buffers (see section Calibration Mode).
- e. The display shows the current reading in pH or mV.

7.00 pH Ready 22.4 °C ATC
------------------------------

measured reading - pH

When the signal is stable, the meter displays inscription READY. The inscription READY means the signal is changing less than 0.007 pH or 0.08 mV from the prior reading.

+020.04 mV 22.4 °C
-----------------------

measured reading - mV

- f. Use mV measuring mode to:
  - A. To test the meter for correct operation.

Install the BNC (input) shorting cap. Press pH/mV to select the mV mode. If the meter reads  $0 \pm 0.3$  mV, it is measuring correctly. If the reading is outside of this range, the meter may need to be electronically calibrated.



#### B. To test the pH electrode

Place it in a good pH 7 buffer. Press pH/mV to use the mV mode, and note the millivolt reading. Repeat for either a pH 4 or pH 10 buffer. The electrode signal must be within the limits shown on figure (when temperature is near 25°C).

#### C. To calculate the electrode slope

Place the meter in mV mode and measure mV in pH 4 and 7 buffers (25°C).

- Determine the net change in millivolts.

Example: if the pH 7 buffer reading was -10.0mV, and the pH 4 buffer reading was 159.1mV, the net change would be 169.1mV.

- Divide the result (net change) by 177.5, then multiply by 100 to determine the % of the electrode's slope.

(Example:  $169.1/177.5 \times 100 = 95.3\%$ .)

- New electrodes ( fresh out of the box) have a slope between 95.0% and 102%. If the slope drops below 92%, clean the electrode.
- If the slope remains below 90.0% or above 102% after cleaning, replace the electrode.

### 3.2.1. pH Electrode Care Tips

- a. pH electrode should be rinsed thoroughly in tap water after each test.
- b. Make sure to keep the electrode in storage solution /4 buffer (preferably) or tap water/ between uses.

**DO NOT USE DISTILLED WATER.**

**Note: PH Electrodes must be kept moist.** The pH electrode was shipped stored in a soaker storage bottle or vinyl cap, depending on model. The storage solution contained in the bottle is a potassium chloride solution. Do not be alarmed if white crystals form at the end of the electrode. It is simply potassium chloride. Rinse with water to dissolve the crystals before using the electrode. For storage, place the electrode back in the soaker bottle. If the potassium chloride solution evaporates or is lost, simply use pH buffer 4.0 for storage. **DO NOT** use distilled or deionized water as this will drastically reduce the electrode lifespan. If the pH electrode is left dry, soak the electrode up to 2 hours in

Electrode Test	
pH7	$0 \pm 30$ mV
	169 to
pH4	186 mV more than pH 7
	159 to
pH10	185 mV less than pH 7

pH buffer 4.0 solution. If the electrode is left dry for an extended period of time, rinse in a 10% HCl solution for 10 seconds. Rinse with tap water and store in a KCl solution overnight. This may regenerate the pH electrode. (For more information - see section „pH - additional information“).

c. The reference electrolyte needs to be refilled when the electrode has been used for an external period, or when the internal electrolyte has dried up. To accomplish this, follow the procedure described in section 6.2.5. Electrolyte Replacement (for refillable electrode only).

### 3.2.2. Printing the results.

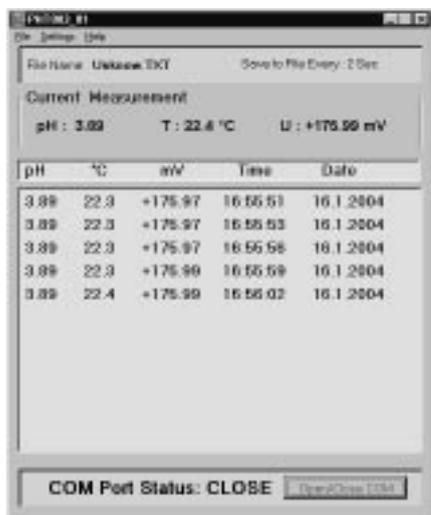
Connect a DEP 50 ESC/POS Printer to the pH meter by means of printer RS cable. Press button  to print the result that is on the display in the moment of button pressing.

### 3.2.3. Sending data to the computer

a. Connect the pH meter to the PC.

Switch off the pH meter and the PC. Connect the provided RS232 cable to some free COM port to the PC and to the RS 232 connector of pH meter. First, switch the pH meter on, next switch on the PC.

b. Start **PHT003** (version 01) program and the a program window appears on the PC display.



c. Start data transmitting pressing button  and then pressing button **HOLD** not releasing button . The data will appear on the computer display.

## A. File menu

**New** - open a new file;

**Open** - open an existing file (the file format is \*.txt);

**Save** - save the current file;

**SaveAs** - save the current file under a new file name;

**Exit** - close the program

## B. Settings menu

**Com Port** - click on Com Port to appear the Com port setting dialog box.

**Port:** select that Com port, which is connected to the pH meter;

**Baud rate:** this value must be 1200;

**Data bits:** this value must be 8;

**Stop bits:** this value must be 1;

**Parity check:** select NONE;

**Flow control:** select NONE.

**Record Mode:** Type in the edit box the time interval between every two consecutive automatic recordings of the results.

For online information use the help menu.

### Troubleshooting:

If there is not data received, check the following:

a. Make sure the RS232 cable is correctly connected or damaged;

b. Make sure PHT003 settings are correct.

If you cannot find a solution, you can receive information by E-mail:  
eonbg@eonbg.com

## 3.3. Calibration Mode

### 3.3.1. Calibration for pH Measurement

The pH meter performs automatic temperature compensation.

Steps:

a. Press and release the **pH/mV** button until your digital display indicates pH mode. This button toggles between pH and mV modes.

b. Press button **CAL**. The inscription **LOAD PH 7** appears on the display.

This message indicates that pH 7.00 is ready for calibration.

Remove the wetting cap from the pH sensor. Rinse the pH and Temperature sensors in distilled water and blot them dry.

Place both sensors into a small sample of primary buffer that is at pH7. The bulb and reference junction should both be covered. Stir gently. Allow the electrode to reach a stable value, waiting for **READY** inscription.

Load pH 7	Ready
20.2°C	7.02

When **READY** is on the display press **OK** key to start calibration. The message **CALIBRATION...WAIT, PLEASE...** appears on the display. The next message **LOAD PH 4** will be displayed when the pH7 calibration is performed. The instrument is calibrated with buffer pH7.00.

Press button **CAL** to finish calibration. The 1-point calibration procedure is now complete.

For pH4 and pH10 (2 or 3 point) calibration perform the above procedure (steps a, b) following the pH meter prompts until completion.

If the 3-point calibration procedure is successfully completed, the display shows the message:

<p>pH - METER CAL FINISHED</p>
------------------------------------

Press **OK** to enter in pH measuring mode.

### 3.3.2. Calibration for mV Measurement

This procedure requires a special equipment - mV calibrator. The procedure can be made only in manufacture service or in another service authorized to make this. Eon Trading is a producer of a calibrator PHC003 with the following specification:

Output voltage	0; ± 500 mV
Accuracy	±0.1 mV
Temperature coefficient	<30 ppm/°C
Power Supply	220V

Use this calibrator or another with the such or better specification.

- a. Press button **ON/OFF** to switch off the meter.
- b. Wait for 30 seconds.
- c. Press button **CAL** and then press button **ON/OFF** not releasing button **CAL**. The message **Calibrate mV - meter** appears on the display.
- d. Release button **CAL** to appear the next message **Insert 0.00 mV**. The second row displays the present mV value.
- e. Connect the mV calibrator instead of pH electrode. Set the mV calibrator to 0.00mV. The second row will display the real mV value. When the meter reaches a stable value (0.00 mV) press **OK** . The message **Insert + 500.00 mV** appears on the display. Press **CAL** to finish the procedure. The 1-point calibration procedure is now complete.

f. For 2-point calibration set the mV calibrator to +500.00 mV and wait for stable value. Press **OK** and the message **Insert -500.00 mV** will appear on the display. Press **CAL** to finish the procedure. The 2-point calibration procedure is now complete.

g. For 3-point calibration set the mV calibrator to -500.00 mV and wait for stable value. Press **OK** and the message **mV - Meter Cal Finished** will appear on the display. The 3-point calibration procedure is now complete. Press **OK** to enter in mV measuring mode.

### ***3.3.3. Restoring the factory (initial) settings.***

- a. Press button **ON/OFF** to switch off the meter.
- b. Wait for 30 seconds.
- c. Press button **HOLD** and then press button **ON/OFF** not releasing button **HOLD**. The message **Work settings** appears on the display.
- d. Release button **HOLD** to appear the next message: **Default Values? Press Key OK**.

There are 2 possibilities:

- Press **OK** to restore the factory (initial) settings. After this procedure the meter enter in pH measuring mode. In this case it is necessary to perform 3-point pH and mV calibration.
- Press any other key to exit from the procedure.

### ***3.2.4. Calibration Notes***

1. A 1-point calibration using a pH7.00 buffer should be performed at least weekly. In applications where the sensor junction can become blocked (eg. wines, dairy products, mining slurries etc.) a 1-point calibration may have to be done daily.
2. A full 3-point calibration should be performed at least monthly. Of course, more frequent calibration will result in greater confidence in results.

#### 4. PH HELPFUL HINTS

For greatest accuracy in pH measurement, follow these guidelines:

- Use the same technique to measure samples which was used for calibration. Be consistent with stirring rates, times and conditions.
- Calibrate with buffers which are close in temperature to that of the sample.
- Calibrate the pH electrode regularly, e.g. once an hour for accuracy to within 0.01 pH, or once a day for accuracy to within 0.1 pH.
- Use fresh buffers for calibration. Avoid contamination of the stock buffer solution and do not use beyond the expiry date.
- Keep all connections dry.
- Immerse the electrode far enough into the solution to insure the reference junction (where the ground glass stem contacts the end of the sleeve) is below the surface.
- Allow adequate time for the electrode to stabilize in standards and samples before taking a reading. Clean the electrode periodically. Allow more time for aged electrodes.
- Do not use the pH electrode in solutions of fluoride ion at low pH. This will etch the glass membrane.
- Sulphide vapors can permeate the electrode wick and contaminate the reference element. Minimize contact in such environments and change the reference electrolyte frequently.

## 5. ERROR LIST

Symptom	Possible Causes	Remedy
Meter displays „ Open“ or „High mV“ as a reading.	pH sensor not connected or faulty.	Connect pH sensor. Replace sensor if necessary.
Inaccurate readings, even when calibration is successful.	Reference junction blocked.	Clean reference junction as per instructions supplied with the sensor.
Displays around pH7.00 for all solutions.	Electrical short in connector	1. Check connector. Replace if necessary. 2. Replace sensor.
Displays 4-5 pH for all solutions.	Glass bulb or internal stem cracked.	Replace sensor.
Unstable readings.	<ol style="list-style-type: none"> <li>1. Reference junction blocked.</li> <li>2. Glass bulb not clean.</li> <li>3. Bubble in glass bulb.</li> <li>4. Faulty connection to meter.</li> <li>5. Reference junction not immersed.</li> <li>6. KCl crystals around reference junction, inside the electrolyte chamber.</li> </ol>	<p>Clean reference junction as per instructions supplied with the sensor.</p> <p>Clean glass bulb as per instructions supplied with the sensor.</p> <p>Flick the sensor to remove bubble.</p> <p>Check connectors. Replace if necessary.</p> <p>Ensure that the bulb AND the reference junction are fully immersed.</p> <p>Rinse electrolyte chamber with warm distilled water until dissolved. Replace electrolyte.</p>
Meter display „ It's not 0.00mV (+500.00 or -500 mV)“ in mV calibration mode.	The mV value from the mV calibrator is different from the required value with $\pm 40$ mV.	<ol style="list-style-type: none"> <li>1. Set the mV calibrator to the right value;</li> <li>2. Check the connections;</li> <li>3. Restore the factory (initial) settings (see section „Restoring the factory (initial) settings“).</li> </ol>
Meter display „ It's not pH7 (4 or 10)“ in pH calibration mode.	The buffer solution pH is different from the required pH with $\pm 1$ .	<ol style="list-style-type: none"> <li>1. Use right pH buffer solutions.</li> <li>2. Check the pH electrode in mV mode (see section „ 3.2.6. Use mV measuring mode to „</li> <li>3. Check the connections;</li> <li>4. Restore the factory (initial) settings (see section „3.3.3. Restoring the factory (initial) settings“).</li> </ol>
Meter display „EEPROM Error! Default Settings“	PROM is erased.	The meter start automatically the self restoring procedure. After this message it is necessary to perform 3 point pH and mV calibration.
Meter display „EEPROM Error! FATAL“	PROM is damaged.	This error can't be corrected by the user. Contact your dealer to make the repairs.

## 6. PH MEASUREMENT - ADDITIONAL INFORMATION

### 6.1. General

pH is a unit to measure which describes the degree of acidity or alkalinity of a solution. It is measured on scale of 0 to 14. The term pH is derived from „p“, the mathematical symbol of the negative logarithm, and „H“, the chemical symbol of Hydrogen. The formal definition of pH is the negative logarithm of the Hydrogen ion activity.

### 6.2. pH Electrode

For pH measurement meter needs a combination electrode, compatible with most pH electrodes that have BNC connectors and zero potential (the pH where the millivolt output of the electrode equals 0) near 7 pH.

#### 6.2.1. Electrode part

The electrode is the most important part of the pH measurement. The electrode glass membrane is fragile and must be handled with care. To protect the glass membrane and to maintain activation, the glass membrane is covered by a protective rubber cap containing a suitable storage solution.

#### 6.2.2. Electrode care & Electrode maintenance

pH Electrodes are susceptible to dirt and contamination and need to be clean regularly depending on the extent and condition of use. At no time should one touch or rub the glass bulb as this causes the build-up of electrostatic charge.

#### 6.2.3. Storage

The best results, always keep the pH bulb wet. An optimal storage solution for combination electrode is pH 4 buffer (clear not pink) with 225 grams of KCl per liter. Table salt, NaCl, can be used if KCl is not really available. Other pH buffers or tap water are also acceptable storage media, but avoid storage in de-ionized water. The protective rubber cap filled with the buffer solution provides ideal storage for long periods.

#### 6.2.4. After Use

After measurement is complete, follow the sequence elaborated below for storage.

- a) Wash the electrode and reference junction in de-ionized water.
- b) Close the refilling hole by returning its rubber sleeve or stopper cap (Necessary for only refillable electrode).
- c) Store the electrode as mentioned above (see section Storage).

### **6.2.5. Electrolyte Replacement (for refillable electrode only).**

The reference electrolyte needs to be refilled when the electrode has been used for an external period, or when the internal electrolyte has dried up. To accomplish this, follow the procedure detailed below.

a) Remove the protective rubber cap or sleeve.

Remove the protective rubber sleeve to expose the filling port of the electrode. Remove the old reference electrolyte with a syringe.

b) Fill the new reference electrolyte.

New electrolyte preparation:

Open the small container with KCl.

Add in de-ionized water until it reaches the level of 20 ml. Close the container and shake it to dissolve the KCl.

Add in fresh electrolyte until it reaches the level of the refilling port. The reference electrolyte used should be 3M (Mol) KCl. Replace the rubber sleeve.

c) Re-use the electrode

Rinse the liquid junction with de-ionized water.

**Note:** If these steps fail to restore normal electrode response, you may attempt to rejuvenate it. ( See: Electrode Rejuvenation).

### **6.2.6. Electrode cleaning**

Electrodes which are mechanically intact can often be restored to normal performance by one or combination of the following procedures.

a) Salt deposits:

Dissolve the deposit by immersing the electrode in tap water for ten to fifteen minutes. Then thoroughly rinse with de-ionized water.

b) Oil/Grease Films

Wash electrode pH bulb in a little detergent and water. Rinse electrode tip with de-ionized water.

c) Clogged Reference Junction: pH electrodes have junction which allows the internal fill solution of the measuring electrode to leak out into the solution being measured. The junction can become clogged by particulate in the solution. If a clogged junction is suspected it is best to clear the junction.

Heat a dilute KCl solution to 60-80°C. Place the sensing portion of the pH electrode into the heated KCl solution for approximately 10 minutes. Allow the electrode to cool while immersed in some unheated KCl solution.

d) Protein Deposits

Prepare a 1% pepsin solution in 0.1M HCl. Allow the electrode to stand in this solution for five to ten minutes. Rinse the electrode with de-ionized water.

### **6.2.7. Electrode activation**

Generally, if the procedure of storage and maintenance had been closely followed, the electrode can be used immediately. However, should the electrode response become sluggish, it may be possible that the bulb has dehydrated. The bulb can be rehydrated by immersing the electrode in an ideal storage solution (e.g. buffer pH 4 solution) for 1 - 2 hours. If this fails, the electrode may require re-activation.

If the above procedure does not reactivate the electrode to acceptable status, try rejuvenation the electrode by following the procedure outlined below.

### **6.2.8. Rejuvenation Procedure**

- a) Dip and stir the electrode in freon or alcohol for 5 minutes.
- b) Leave the electrode in tap water for 15 minutes.
- c) Dip and stir the electrode in concentrated acid ( $\text{HCl}$ ,  $\text{H}_2\text{SO}_4$ ) for 5 minutes.
- d) Repeat Step b - leave the electrode in tap water for 15 minutes.
- e) Dip and stir in strong base ( $\text{NaOH}$ ) for 5 minutes.
- f) Repeat Step b - leave the electrode in tap water for 15 minutes.
- g) Test with standard calibration solution.

Finally, test with standard calibration buffer solution to see if the electrode yields acceptable results. You may repeat steps 'c' to 'f' again for better response (maximum 3 times). If the response does not improve, then the electrode has completed its useful life. Replace with a new electrode.

### **6.3. Electrode Lifespan**

pH electrodes have a finite lifespan due to their inherent properties. How long a pH electrode will last will depend on how it is cared and the solution it is used to measure. Even if an electrode is not used it still ages. Electrode demise can usually be characterized by a sluggish response, erratic readings or a reading which will not change. When this occurs an electrode can no longer be calibrated. pH electrodes are fragile and have a limited lifespan. How long an electrode will last is determined by how well the is maintained and the pH application. The harsher the system, the shorter the lifespan. For this reason it is always a good idea to have a back-up electrode on hand to avoid any system down time.

### **6.4. Buffer Solutions**

Buffers are solutions that have constant pH values and the ability to resist changes in that pH level. They are used to calibrate pH measurement system.

### **6.5. Automatic Temperature Compensation (ATC)**

Automatic Temperature Compensation is contained within the meter, because pH measurement is temperature sensitive. To activate the ATC, simply plug in the temperature probe into the phono jack.

### **6.6. pH Electrode Calibration**

pH Electrodes are like batteries; they run down with time and use. As an electrode ages, its glass changes resistance. For this reason, electrodes need to be calibrated on a regular basis. Calibration in pH buffer solution corrects for this change.

Calibration is an important part of electrode maintenance. This assures not only that the electrode is behaving properly but that the system is operating correctly.

Usually pH meters require calibration at 3 specific pH values. One calibration is usually performed at pH 7, second and third are typically performed at pH 4 and pH 10.

**Attention:** It is best to select a buffer as close as possible to the actual pH value of the sample to be measured. Use standard calibration buffers that the temperature and the sample solution are the same.

## 7. GUARANTEE CARD

This card must be completed at the time of purchase. No claims will be recognized without the original guarantee card or other proof of purchase. This warranty becomes invalid if modifications or repairs are attempted by unauthorized persons, or the serial number is missing.

### WARRANTY

EON Trading guarantees all instruments and sensors to be free from defects in material and workmanship when subjected to normal use and service. This guarantee is expressly limited to the servicing and/or adjustment of an instrument returned to the Factory, or Authorized Service Station, freight prepaid, within twelve (12) months from the date of delivery, and to the repairing, replacing, or adjusting of parts which upon inspection are found to be defective. Warranty period on sensors is three (3) months. There are no express or implied warranties which extend beyond the face hereof, and EON Trading is not liable for any incidental or consequential damages arising from the use or misuse of this equipment, or from interpretation of information derived from the equipment. Shipping damage is not covered by this warranty.

**DATE OF PURCHASE:**

**PURCHASER**

**SERIAL N°:**

**DISTRIBUTOR**



SignatureStamp

**PROCEDURE FOR SERVICE**

If you feel that this equipment is in need of repair, please re-read the manual. Sometimes, instruments are received for „repair“ in perfect working order. This can occur where batteries simply require replacement or re-charging, or where the sensor simply requires cleaning or replacement. EON Trading has a fine reputation for prompt and efficient service. In just a few days, our factory service engineers and technicians will examine and repair your equipment to your full satisfaction. To obtain this service, please follow this procedure:

Return the instrument AND ALL SENSORS to EON Trading freight pre-paid and insured in its original packing or suitable equivalent. INSIST on a proof of delivery receipt from the carrier for your protection in the case of shipping claims for transit loss or damage. It is your responsibility as the sender to ensure that EON Trading receives the unit.

**Service report**

Service entry date	Damage	Delivery date	Signature





## **PRODUCER**

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## **EON TRADING LLC, USA**

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