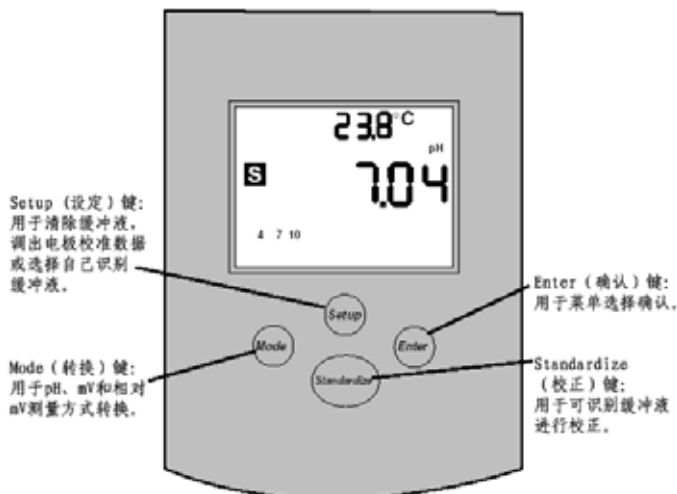


目录

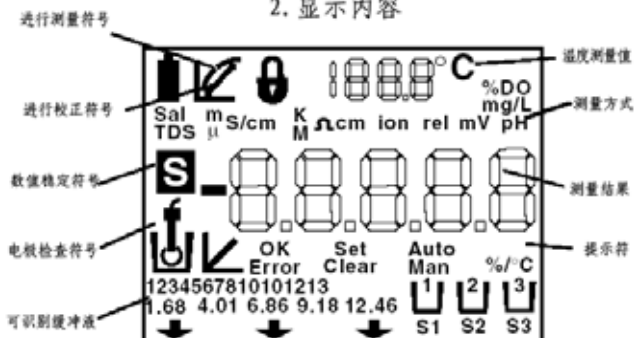
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概貌

1. 仪器正视图

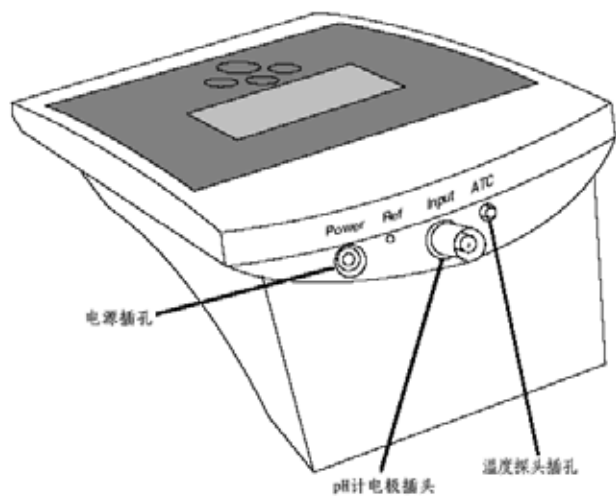


2. 显示内容



注意: 不是所有显示符号都可使用

3. 仪器后视图



保修和安全警示

请不要忽视我公司为您提供完善保修服务，填写保修卡、注明购买日期，并反馈回赛多利斯公司。

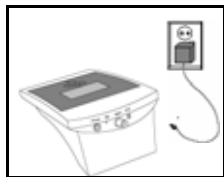
出于确保操作者人身安全和仪器使用精度的目的，PB-10 pH计外壳只能由赛多利斯公司授权的维修技术人员打开，并只能由经过授权的专业人员进行诸如修理或维护等工作。对于因为其他人员进行上述工作或由于使用不当造成仪器损坏的，将不能再向赛多利斯公司提出保修要求。

如果有液体进入到仪器中，则应切断电源并请专业人员来检查。

出于安全原因，pH计只能在操作说明所阐述的领域中使用。

注意：校准所用的缓冲溶液，要准确地与所存储的数值一致。

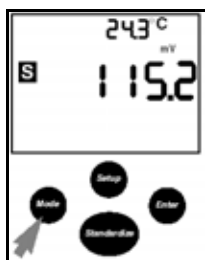
pH计简要操作说明



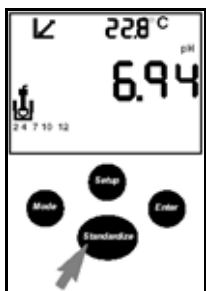
1. 将变压器插头与pH计Power（电源）接口相连，并接好交流电。



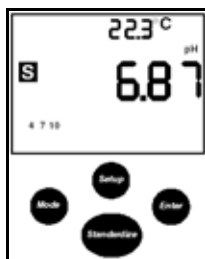
2. 将pH复合玻璃电极与BNC（电极）和ATC（温度探头）输入孔连接。



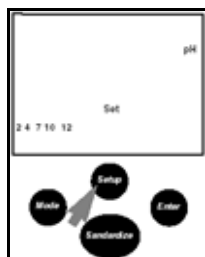
3. 按Mode（转换）键，直至显示屏上出现相应的测量方式（pH，mV或相对mV）。



4. pH计最多可用3种缓冲液校准。校准时要将电极浸入到缓冲液中，搅拌均匀，按Standardize（校正）键进行相应的缓冲液值的校准。

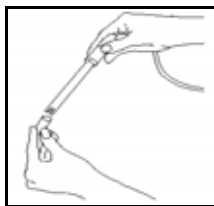


5. 显示屏显示当前pH，mV或相对mV测量值。



6. 按Setup(设置)键可显示经校准而得到的信息和清除或选择输入的缓冲液值。

电极的安装和维护



1. 去掉电极的防护帽。



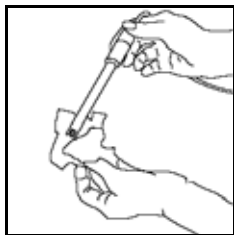
2. 建议电极在第一次使用前,或电极填充液干了,应该浸在标准溶液或KCl溶液中24小时以上。



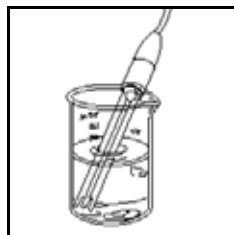
3. 去掉 pH 计接头的防护帽,将电极插头接到背面的 BNC(电极)和 ATC(温度探头)输入孔。



4. ORP 及离子选择性电极的选择性连接。去掉 BNC 密封盖,将电极接到 BNC 输入孔。



5. 在各次测量之间要清洗电极，吸干电极表面溶液（不要擦拭电极），用蒸馏水或去离子水或待测溶液进行冲洗。



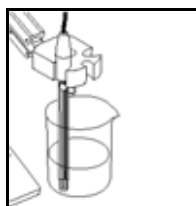
6. 将玻璃电极存放在电极填充液 KCl 溶液中或电极存储液中。测量过程中如选择可填充电解液电极，加液口应常开；在存放时关闭。并应注意在内部溶液液面较低时添加电解液。温度探头应干燥存放。

pH测量方式的校准

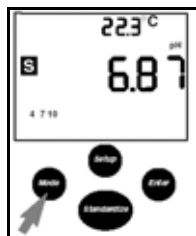
因为电极的响应会发生变化，因此pH计和电极都应校准，以补偿电极的变化，越有规律地进行校准，测量就越精确。为了获得精确的测量结果，有必要每天或经常进行校准。

pH计最多可以使用3种缓冲液进行自动校准。

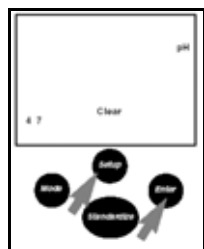
PB-10 pH计具有自动温度补偿功能。



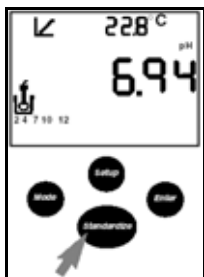
1. 将电极浸入到缓冲溶液中，搅拌均匀，直至达到稳定。



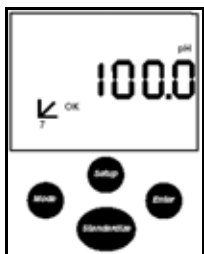
2. 按Mode (转换) 键，直至显示出所需要的pH测量方式。用此键可以在pH和mV模式之间进行切换。



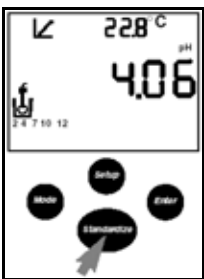
3. 在进行一个新的两点或三点校准之前，要将已经存储的校准点清除。使用 Setup (设置) 键和 Enter (确认) 键可清除已有缓冲液，并选择您所需要的缓冲液组。(见第 12 页)。



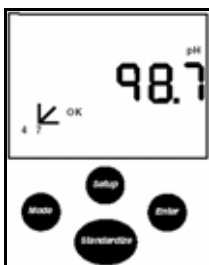
4. 按Standardize（校正）键。pH计识别出缓冲液并将闪烁显示缓冲液值。在达到稳定状态后，或通过按Enter（确认）键，测量值即已被存储。



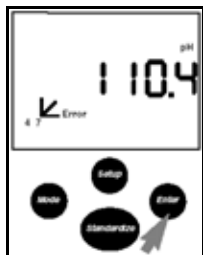
5. pH计显示的电极斜率为100.0%。当输入第2种或第3种缓冲液时，仪器首先进行电极检验（见步骤7及以后步骤），然后显示电极的斜率。



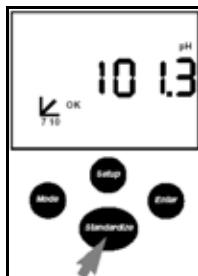
6. 为了输入第2个缓冲液，将电极浸入到第2种缓冲溶液中，搅拌均匀，并等到示值稳定后，按Standardize（校正）键。pH计识别出缓冲液，并在显示屏上显示出第1和第2个缓冲液值。



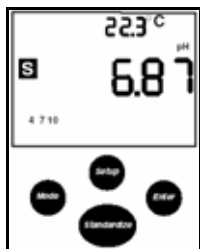
7. 当前 pH 计正进行电极检验。系统显示，电极是完好的“OK”，还是有故障的“Error”。此外，还显示出电极的斜率。



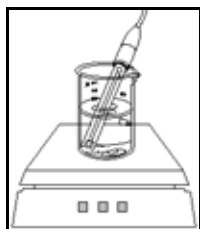
8. “Error”表示电极有故障。电极斜率应在90%和105%之间。在测量过程中产生出错报警是不允许的（见第19页错误诊断）。按Enter（确认）键，以便清除出错报警并从第6步骤处重新进行。



9. 为了设定第3个标准值，将电极插到第3种缓冲溶液中，搅拌均匀，并等示值稳定后，按Standardize（校正）键，结果与在步骤6和7时一样。此时，系统显示3种缓冲液值。



10. 输入每一种缓冲液后，“Standardizing”显示消失，pH计回到测量状态。



11. 为了校准pH计，至少使用2种缓冲液，待测溶液的pH值应处于两种缓冲液pH值之间。用磁搅拌器搅拌，可使电极响应速度更快。

提示：

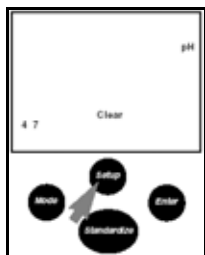
如果使用温度探头，pH计总是随温度不断调整，因此由于温度的变化，缓冲液的显示值与缓冲液的标准值相比可能会有微小波动。**缺省温度设置为25** 。

提示：

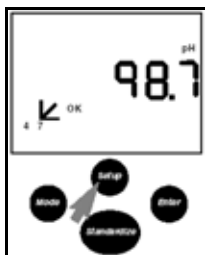
只有当使用温度探头时，才在仪器上显示温度值。

Setup (设置) 键使用方法

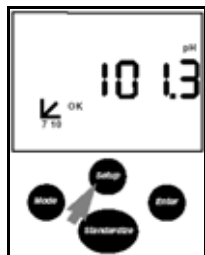
用Setup (设置) 键能清除所有已输入的缓冲液值, 察看校准信息或选出所需要的缓冲液组。按Mode (转换) 键, 可随时退出设置模式。



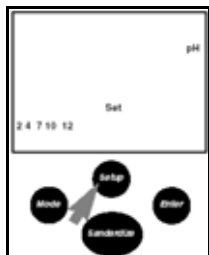
1. 按Setup(设置)键, 仪表闪烁显示“Clear”, 能将所有输入的缓冲液测量值清除。如果确实想清除, 请按Enter(确认)键。pH计将所有存储的校准点清除掉并回到测量状态。



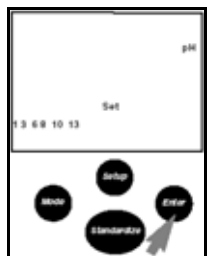
2. 再按Setup(设置)键, 即得到有关电极状态和第1与第2校准点之间斜率的信息。此外, 还显示出两个缓冲液的数值。



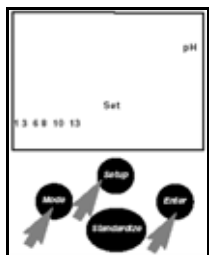
3. 再按Setup(设置)键, 显示第2与第3个缓冲液间的斜率(如果输入了第3个缓冲液的话)以及第2和第3个缓冲液的数值。



4. 再按 Setup(设置)键 ,仪表闪烁显示“ Set ”, 并显示第一组缓冲液的数值。



5. 按 Enter (确认) 键可以选择所显示的缓冲液组, 或者通过按 Setup (设置) 键在三组缓冲液组之间切换。



6. 按 Enter(确认) 键选出所需要的缓冲液组。按 Setup (设置) 键或随时按 Mode (转换) 键, 都将回到测量状态。

提示：

可以从不同的缓冲液组中选择缓冲液。

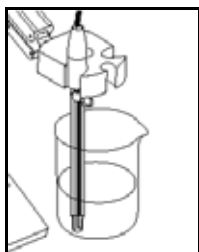
mV (相对mV) 测量方式的校准

测量mV主要是为了确定离子浓度和氧化还原电位。

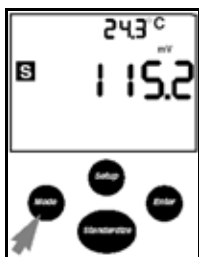
为了确定离子浓度，可以使用离子选择性电极 (ISE) 记录离子浓度，且使其以电位形式 (mV模式) 显示，由电位值能确定试样的离子浓度 (借助于事先记录的校准曲线)。

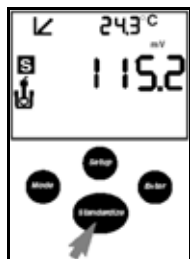
氧化还原电位测量，可用于监测或控制需要定量还原剂或氧化剂的溶液中。

1. 将电极浸入到标准溶液中。

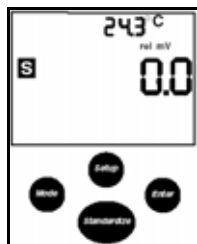


2. 按 Mode (转换) 键，直至显示 mV 测量方式。

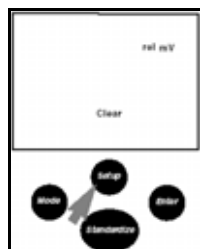




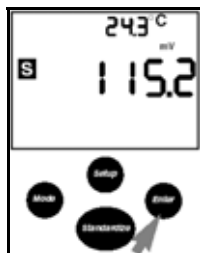
3. 按Standardize (校正) 键, 以便能输入 mV 标准并读出相对 mV 值。



4. 如果信号保持稳定或按Enter(确认)键, 当前绝对mV值就成了相对mV值的零点。



5. 为了清除以前输入的mV偏移量而恢复到绝对mV测量方式, 按Setup(设置)键。显示器显示出闪烁的“Clear”符号和当前相对mV偏移量。



6. 按Enter(确认)键, 清除相对mV偏移量, 从而返回到绝对mV测量方式。

关于pH理论

pH值的定义

在工业和研究领域中，pH值的测量起着重要作用，以此来确定和控制酸度或碱度。pH值是衡量一种溶液酸度或碱度的尺度，用下面的公式表示：

$$\text{pH} = -\log[\text{H}^+]$$

$[\text{H}^+]$ 表示溶液中氢离子浓度，pH值有时也被称为“氢离子指数”。

例如：用pH计能准确地确定出溶液的pH值。用柠檬汁的pH值为2.4代替了只是说“柠檬汁相当酸”的简单表达方法。在化学生产过程中或基础研究中，pH值用来准确地调整或检验酸度。

pH值一般在0和14的范围之间，pH值7表示中性点和纯净水的pH值。7以上的pH值呈现越来越强的碱性，7以下的pH值呈现越来越强的酸性（见图1）。

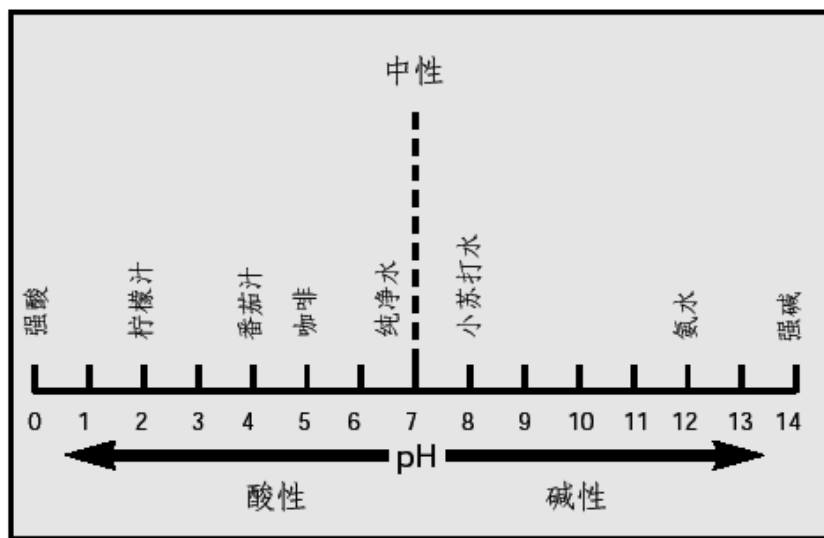
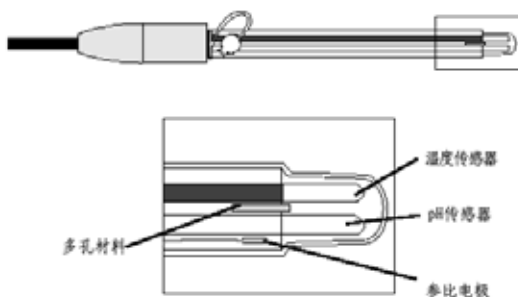


图1. 反映一些常见物质酸、碱性的pH刻度

pH值的测量

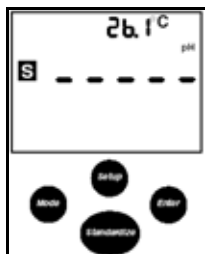
用通常的pH玻璃电极测量pH值时，使用的是对氢离子敏感的玻璃球膜，其相对于玻璃薄膜的电位是溶液pH值的直接尺度。

玻璃电极和参比电极能组成完整的测量电路，参比电极提供稳定的基准值。两种电极结合在一起能组成复合电极。pH计测量出玻璃复合电极的电压，电压转换成pH值，其结果被显示出来。

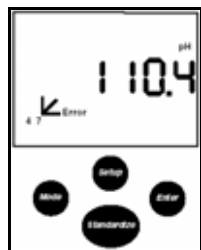


pH复合玻璃电极

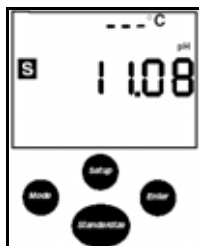
错误诊断



1. 如果输入信号超出测量范围，仪器就会显示“---”。这时请检查电极是否浸入到溶液中。



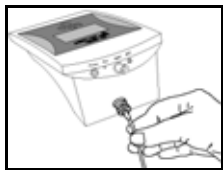
2. 如果确定电极响应有问题，则仪器显示“Error”。当在校准时，电极的斜率小于90%或大于105%，也会显示此错误。因此显示“Error”表明电极或缓冲液有问题。



3. 如果在测量温度时确定仪器有误差，则显示屏中出现“---”。如果使用的是不带温度探头的电极，则仪器使用的是内置的标准温度25。

电极检测	
pH 7	0 ± 30 mV
pH 4	159 to 186 mV 大于 pH 7
pH 10	159 to 186 mV 小于 pH 7

4. 为了检验电极，将电极浸入到pH=7的缓冲液中。按Mode（转换）键，确保仪器在mV方式而非相对mV方式进行测量。用pH=4或pH=10的缓冲液重复此过程。电极信号应在左表所列的范围内（如果温度约为25）。



5. 为了检验仪器，将BNC短路插头插入Input孔。用Mode（转换）键进入到mV测量方式，并记录显示的数值。如果仪器显示 $0 \pm 0.3\text{mV}$ ，则仪器工作准确。
注意：经严格校准后的仪器长期稳定性漂移应小于 0.1mV/月 。

技术参数

pH	测量范围	0至14.00
	可读性	0.01
	精确度	± 0.01
mV	测量范围	$\pm 1500.0\text{mV}$
	可读性	0.1mV
	精确度	$\pm 0.4\text{mV}$
温度	测量范围	-5.0至105.0
	可读性	0.1
	精确度	± 0.2
校准点	最多3种缓冲液	
自动识别缓冲液	16种缓冲液 2 ; 4 ; 7 ; 10 ; 12 1 ; 3 ; 6 ; 8 ; 10 ; 13 ; 1.68 ; 4.01 ; 6.86 ; 9.18 12.46	
自动温度补偿(ATC)		
电极斜率自动修正范围	90%至105%	
使用玻璃膜电极		

附件

	定货号
塑料体pH复合电极	
带内置温度传感器, KC1填充液	PY-P10
塑料体pH复合电极	
带内置温度传感器, 凝胶	PY- ASI
玻璃体pH复合电极	
带内置温度传感器, KC1填充液, 铂—透膜	PY-P11
塑料体pH电极, 凝胶	PY-P20
玻璃体pH电极	
KC1填充液, 铂—透膜	PY-P21
温度探头	PY-T01

其它用于专用测量条件的pH电极、离子选择性电极或氧化还原电极, 可向赛多利斯公司咨询。

CE标识

仪器满足欧洲共同体委员会的以下规范要求：
委员会指令 89 / 336 / EEC “ 电磁兼容性(EMC) ”

适用的欧洲标准：

辐射限制：

EN 50081-2 工业区域

抗干扰度：

EN 50082-1 居住区，商业区以及轻工业区

EN 50082-2 工业区域

提示：

任何对赛多利斯公司设备的修改、非赛多利斯公司供应的电缆或设备的连接，后果自负。必须检查，并且根据需要纠正上述修改和连接。根据用户要求，赛多利斯公司可提供最低限度操作规范的有关资料（符合赛多利斯公司上面列出的规定的抗干扰标准）。

委员会指令 73 / 23 / EEC “ 在一定电压范围内应用的电气设备 ”

适用的欧洲标准：

EN 60950 信息技术装置的安全性，包括电气办公设备

EN 61010 对测量、控制和实验室应用的电气设备的安全要求

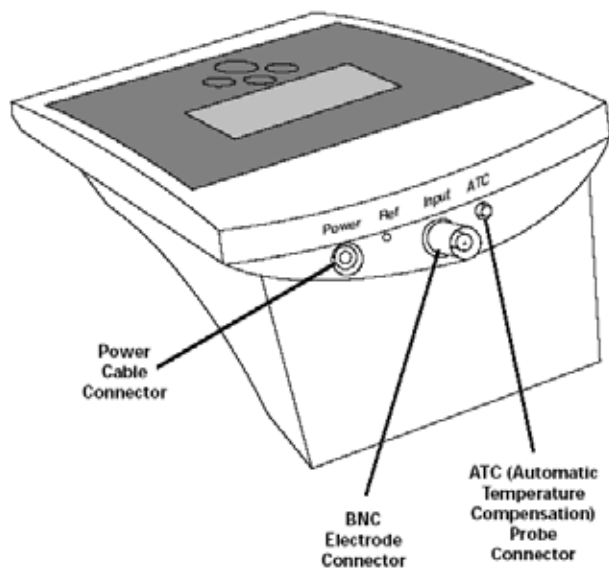
第1部分：一般要求

如果用户在要求更高安全标准的设施和环境条件下使用电气设备，必须遵守国内有关设施适用条例中的规定。

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3. Rear Panel Connectors



Warning and Safety Information

Do not miss out on the benefits of our full guaranty. Complete the guarantee registration card, indicating the date of installation, and return the card to your Sartorius office or dealer.

For safety and operating reasons, only authorized service technicians may open the Basic Meter PB-10 housing. Therefore, only authorized technicians may repair or perform maintenance on this pH meter. Any tampering with the pH meter or negligent or intentional damage to this equipment will void any warranty claims against the manufacturer.

If liquid gets into the pH meter, unplug it from AC power (mains supply) and have an authorized service technician check the pH meter.

If you do not plan to use this pH meter for a relatively long period, please disconnect it from AC power.

For safety reasons, use this equipment only for the application described in this operation manual. Make sure that the buffers used for standardizing have exactly the same values that are stored.

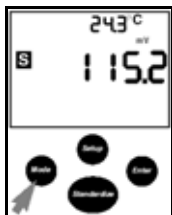
Basic pH Meter Quick Reference



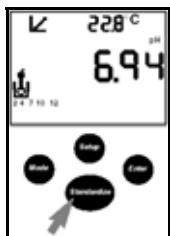
1. Connect power cable to meter power jack and to AC power source.



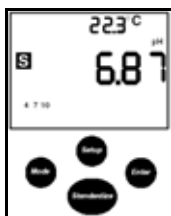
2. Connect a glass pH electrode to the input and ATC connectors.



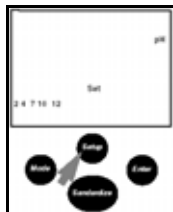
3. Press **Mode** until the display indicates the appropriate measurement mode (pH or mV/relative mV).



4. Standardize the meter using up to three buffers by immersing the electrode in a buffer, stirring, then pressing **Standardize** to enter each buffer.



5. The display shows the current reading in pH, mV, or relative mV units.



6. Press **Setup** to review electrode calibration and to clear or select buffer sets.

Installing and Maintaining Electrodes



1. Remove the protective end cover from electrode.



2. Before first use of your glass pH electrode, or whenever the electrode is dry, soak over night in an Electrode Filling Solution, KC1 solution or Electrode Storage Solution.



3. Remove the shorting cap on the BNC connector. Install the combination glass pH/ATC electrode by plugging it into the input connection (push on and twist to lock) and the ATC connector into the ATC jack.



4. Option: Install ORP or Ion Selective Electrode pairs by removing the BNC shorting cap and plugging the BNC connector (twist-lock) into the BNC jack.



5. Rinse and blot-dry electrodes between each measurement (do not wipe). Rinse electrodes with distilled water or deionized water, or part of the next solution to be measured.



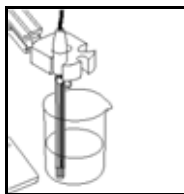
6. Store glass pH electrodes in Electrode Filling Solution, KCl solution or Electrode Storage Solution. Always leave the filling hole open during measurement and closed during storage. Refill with Filling Solution when the internal solution level gets low.

Standardizing for pH Measurement

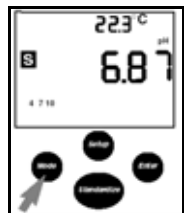
Because electrodes vary in their response, you must standardize your pH meter and electrode to compensate for electrode variation. The more frequently you standardize, the more accurate your measurements. Standardize daily, or more often, for accurate results.

This pH meter allows automatic standardization using up to three buffers.

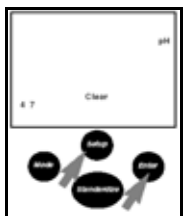
The pH meter performs automatic temperature compensation.



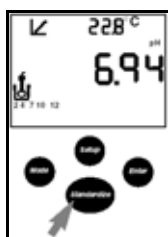
1. Immerse electrode in a buffer solution. Stir gently. Allow the electrode to reach a stable value.



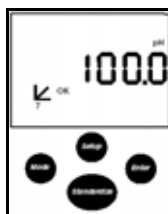
2. Press and release the **Mode** button until your digital display indicates pH mode. This button toggles between pH and mV modes.



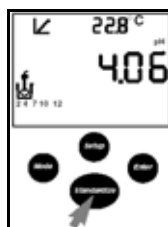
3. Clear existing buffers when doing a new 2 or 3 point standardization. Use the **Setup** and **Enter** buttons to clear existing buffers and to select a new set of buffers. See page 13–14.



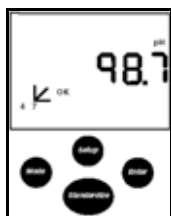
4. Press **Standardize**. The meter recognizes the buffer and flashes a buffer icon. When the signal is stable, or when you press **Enter**, the buffer is entered.



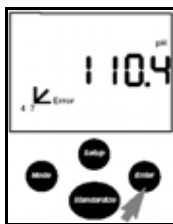
5. The meter displays the %slope of the electrode as 100.0%. On entering a second or third buffer, the meter performs a diagnostic check on the electrode and displays the slope.



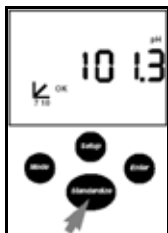
6. To enter a second buffer, place the electrode in the second buffer solution, stir, allow time for the electrode to stabilize, and press **Standardize** again. The meter recognizes the buffer and displays the first and second buffer icons.



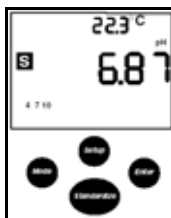
7. Next, the meter performs a diagnostic test of the electrode. The display indicates either *OK* or *Error*. The meter displays the %slope of the electrode.



8. *Error* indicates that your electrode is not working properly. The electrode response must be between 90 and 105% slope. Measurements causing *Error* are not accepted, used or stored by the meter (see "Troubleshooting" on page 19). Press **Enter** to clear the *Error*, then try re-entering the buffer as described in step 6.



9. To set a third standard, place the electrode in the third buffer solution, stir, allow to stabilize, and press **Standardize**. The results will be the same as in steps 7 and 8, except the display will show three buffer icons.



10. After entering each buffer, the meter returns to Measuring operation.



11. Standardize your meter and electrode using at least two buffers with pH values bracketing the expected pH of your samples. Stirring with a magnetic stir bar and stirrer provides faster electrode response.

Note:

If an ATC probe is used, the meter continually adjusts for temperature. Therefore, buffers may vary slightly from the nominal values because of temperature. Default temperature is 25°C.

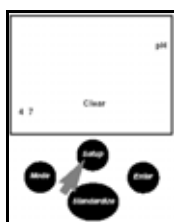
Note:

The temperature is only displayed when an ATC probe is attached.

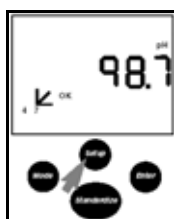
Using Setup

The **Setup** button lets you clear all the buffers that you have entered, review calibration information, or select the buffer set that you want.

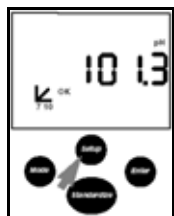
Note: You can escape the setup mode at any time by pressing **Mode**.



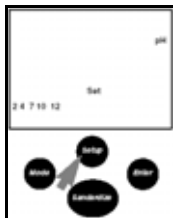
1. Press **Setup** and the meter displays a flashing *Clear* icon. Use this step only when you wish to clear all buffers you have entered. To clear all existing buffers, press **Enter**. The meter clears all buffers and returns to Measuring.



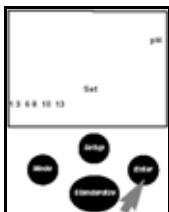
2. Press **Setup** again to show electrode performance. If the meter has accepted two buffers, it will display *OK*, display the slope between the first and second buffers and display the two buffer icons.



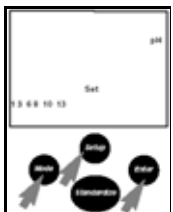
3. Pressing **Setup** again shows the electrode slope between the second and third buffers (if three buffers have been entered) and shows the second and third buffer icons.



4. Press **Setup** again to display a flashing *Set* icon and to display the first buffer set icons.



5. Press **Enter** to select the set of buffers shown on the display or Press **Setup** again to view the next set of buffers. Continue pressing **Setup** to view the third buffer sets.



6. Press **Enter** to select the displayed buffer set that contains the buffer you want to use. Press **Setup** again, or press **Mode** at any time, to return to Measuring.

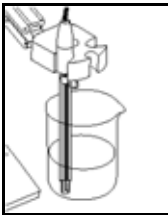
Note: You may mix buffers from different sets.

Standardizing for Millivolt Measurement (Relative Millivolts)

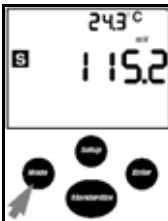
You use millivolt measurement for determining ion concentration and for measuring redox potential (also called ORP, oxidation reduction potential). You will normally use an ion selective electrode (ISE) to measure ion concentration. The ISE senses the ion concentration and responds with a millivolt potential. The millivolt readings are then used to determine ion concentrations.

ORP measurements indicate the oxidizing or reducing capability of a solution. You can use ORP values to monitor or control solutions requiring a set amount of oxidants or reductants.

1. Immerse electrode in a standard solution.

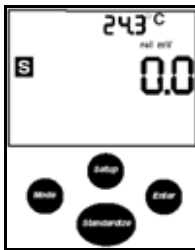


2. Press the **Mode** button until your display indicates *mV* mode.

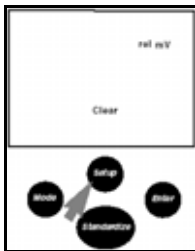




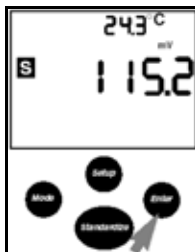
3. Press **Standardize** to enter a mV standard and read relative mV.



4. When the signal becomes stable, or when you press **Enter**, the current absolute mV value becomes zero relative millivolts.



5. To clear a mV offset and return to absolute millivolt mode, press **Setup**. The meter displays a flashing *Clear* icon, and shows the current relative millivolt offset.



6. To clear the mV standard, press **Enter**. You then return to absolute mV mode.

Understanding pH Theory

Defining pH

The measurement of pH plays an important role in identifying and controlling acidity and alkalinity levels for industry and research. pH is a measure of the acidity or alkalinity of a solution and can be represented by this equation:

$$\text{pH} = -\log [\text{H}^+]$$

with $[\text{H}^+]$ representing the concentration of hydrogen ions in the solution. pH is sometimes referred to as the power of the hydrogen ion in a solution.

By using a pH meter, you can determine exact pH levels of solutions. For example, rather than say that lemon juice is quite acidic, you can say that lemon juice has a pH of 2.4. An exact pH value can be used to control or measure acidity levels for manufacturing processes or for basic research. pH values generally range from 0 to 14, with a pH value of 7 being the neutral point, or the value of pure water. pH values greater than 7 represent increasing alkalinity, whereas pH values below 7 represent increasing acidity (Figure 1).

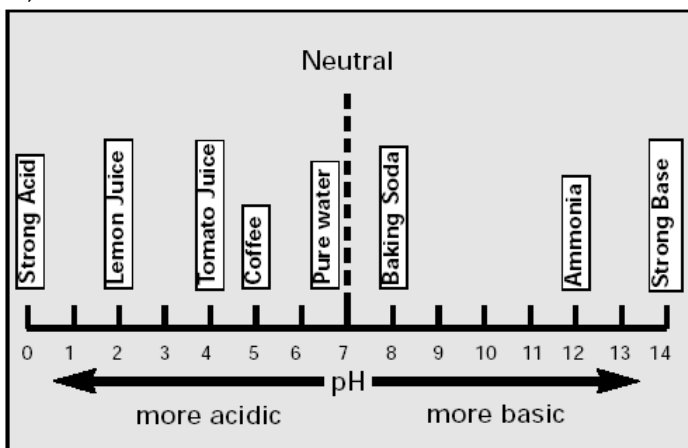
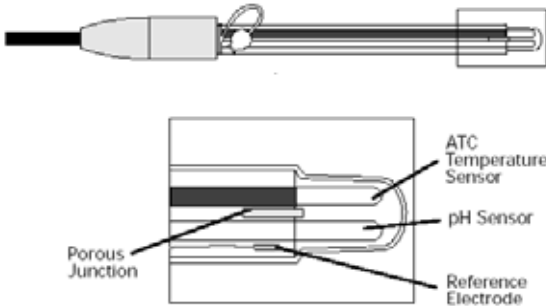


Figure 1.
pH Scale showing the relative acidity or basicity of some common substances.

Measuring pH

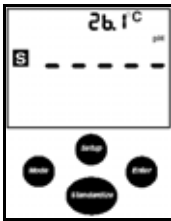
To measure pH with a conventional glass pH electrode, the meter uses a glass bulb that is sensitive to hydrogen ions. The potential developed at the glass membrane is directly related to the pH of the solution.

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, and displays the result.

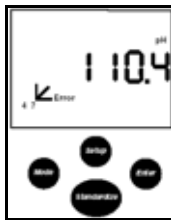


Combination Glass pH Electrode

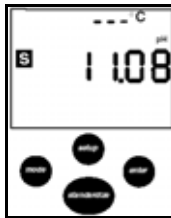
Troubleshooting



1. If the signal from the electrode is out of range, the display will show "---". This may happen when the electrode is not in a solution.



2. The meter will display *Error* when it detects an error in electrode response. During standardization, the message indicates that the electrode is less than 90% or more than 105% of the correct response. The *Error* message can indicate either a bad electrode or bad buffer(s).



3. If the meter detects an error in the temperature probe, the display shows ---°C. If no temperature probe is connected the meter uses the default temperature of 25° C.

Electrode Test	
pH 7	0 ± 30 mV
pH 4	159 to 186 mV more than pH 7
pH10	159 to 186 mV less than pH 7

4. To test the pH electrode, place it in a good pH 7 buffer. Press **Mode** to use the mV mode, and note the millivolt reading. Make sure the meter is in mV mode and not relative mV mode. Repeat for either a pH 4 or pH 10 buffer. The electrode signal must be within the limits shown below (when temperature is near 25°C).



5. To test the meter for correct operation, install the BNC (input) shorting cap. Press **Mode** to select the mV mode, and note the mV reading. Make sure the meter is in mV mode and not relative mV mode. If the meter reads 0 ± 0.3 mV, it is measuring correctly. Note that a long-term drift of 0.1 mV / month since last calibration is specified.

Meter Specifications

pH	Range	0 to 14.00
	Resolution	0.01
	Accuracy	± 0.01
mV	Range	± 1500.0 mV
	Resolution	0.1 mV
	Accuracy	± 0.4 mV
Temperature	Range	-5.0 to 105.0°C
	Resolution	0.1°C
	Accuracy	± 0.2 °C
Standardization		0, 1, 2 or 3 buffers
Auto buffer recognition	16 buffers	
		2, 4, 7, 10, 12
		1, 3, 6, 8, 10, 13
		1.68, 4.01, 6.86, 9.18, 12.46
<hr/>		
Auto Temperature Compensation (ATC)		
Automatic electrode slope correction for 90–105%		
Direct reading with a glass electrode		

Accessories

You can order the following accessories for your pH meter:

Plastic-body pH/ATC Electrode, with built-in temperature sensor 3mol/l KC1 liquid-filled	PY-P10
Plastic-body pH/ATC Electrode, with built-in temperature sensor gel-filled	PY-ASI
Glass body pH/ATC Electrode, platinum junction, 3mol/l KC1 liquid-filled	PY-P11
Plastic body pH Electrode, gel-filled	PY-P20
Glass body pH Electrode, platinum junction	PY-P21
ATC Temperature Probe	PY-T01

Other electrodes, such as ion selective electrodes and redox electrodes are also available. Call your sales representative.

CE Marking

The CE marking affixed to the equipment indicates that the equipment meets the requirements of the following Directive(s):

Council Directive 89/336/EEC "Electromagnetic compatibility (EMC)"

Applicable European Standards:

Limitation of emissions:

EN 50081-2 Industrial environment

Defined immunity to interference:

EN 50082-1 Residential, commercial and light industry

EN 50082-2 Industrial environment

Important Note:

The operator shall be responsible for any modifications to Sartorius equipment and for any connections of cables or equipment not supplied by Sartorius and must check and, if necessary, correct these modifications and connections.

On request, Sartorius will provide information on the minimum operating specifications (in accordance with the Standards listed above for defined immunity to interference).

Council Directive 73/23/EEC

"Electrical equipment designed for use within certain voltage limits"

Applicable European Standards:

EN 60950 Safety of information technology equipment including electrical business equipment

EN 61010 Safety requirements for electrical equipment for measurement, control and laboratory use

Part 1: General requirements

If you use electrical equipment in installations and under ambient conditions requiring higher safety standards, you must comply with the provisions as specified in the applicable regulations for installation in your country.