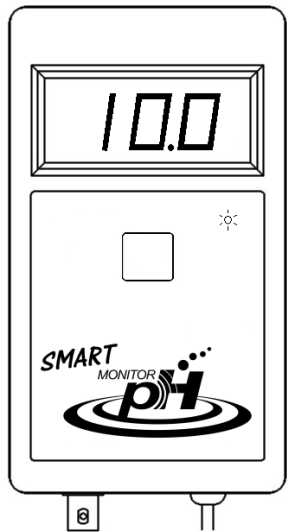


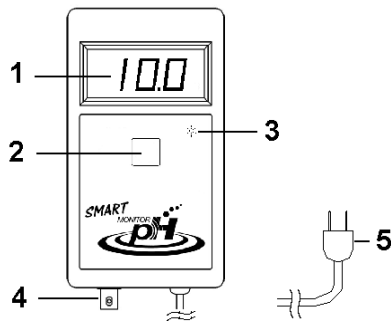
# OPERATION MANUAL

## SMART pH MONITOR



Please read the instructions carefully before use.

### MONITOR DESCRIPTION



- 1) Display
- 2) Automatic Calibrating / Setting push knob
- 3) Indicator for "P" low pH / "S" high pH range
- 4) pH electrode BNC input terminal
- 5) Power adaptor AC100-240V / DC9V

### OPERATING (CALIBRATION)

- 1) Connecting the power. It will show temperature compensation setting. Press the "Cal" knob to change the temperature compensation while showing the state (if not press to set, enter to monitor after 5 seconds), when done the temperature compensation setting, 5 seconds later can continue setting "P" low pH (green lamp) or "S" high pH (red lamp) monitor. (Setting in first time installation only.)
- 2) Connecting the pH electrode to the input BNC terminal. **Calibrate pH7.0 first, then pH4.0.**
- 3) Take away pH electrode from the buffer solution, and clean with fresh water, put the pH electrode into the standard buffer solution pH7.0. Waiting for a few seconds for a stable reading and press the "Cal." knob over 2 seconds, then the pH7.0 is calibrated, the display reading show 7.0 (pH6.0 to 8.0 can be calibrated automatically.)
- 4) Take away the pH electrode from the pH7.0 buffer solution, and clean with fresh water. Then put the pH electrode into the standard buffer solution pH4.0 (or 10.0). Waiting for a few seconds for a stable reading and press the "Cal." knob over 2 seconds, then the pH4.0 (or 10.0) is calibrated, the display show 4.0 (or 10.0). (pH3.0 to 5.0 will be calibrated to pH4.0 automatically, pH9.0 to 11.0 will be calibrated to pH10.0 automatically. It will show error if out of these range.)
- 5) Green lamp display for low pH range pH6.5 - 7.5, green lamp flash if out of the range. Red lamp display for high pH range pH7.5 - 8.5, red lamp flash if out of this range.

### REMARK (INSTRUCTION FOR CLEANING AND MAINTENANCE)

- 1) It must to pull out the power plug (turn off) when cleaning the tester.
- 2) The immersed level for electrode should not be higher than the electrode cap. (When use the refillable electrode, the level should be lower than filling open to avoid the water entering into the open and cause damage.) It had better cleaning the pH electrode sensor

with soft brush and calibrate the pH electrode during 2-3 weeks to keep the test accuracy. Please keep the electrode in the storage bottle with 3M KCL buffer (or standard buffer solution pH4.0) to storage, the crystallization is normal for the keeping.

- 3) pH electrode is accurate glass product, please do not knock it, and do not use finger, cloth and alcohol to clean it to avoid the damage.
- 4) Indoor uses only.

### GENERAL SPECIFICATION

Power Supply : DC9V. (Power Adaptor AC100 – 240V / DC9V)

Power Consumption : Approx. 0.5 watts.

Display : 3 digits 0.56" LED.

Measurement : 1.0 to 13.0 pH ("---" over range)

Resolution : 0.1 pH.

Accuracy at 25°C : ±(0.1%+ 2 digits) after calibrating.

Impedance : 10<sup>12</sup> ohms.

Automatic Calibration : pH7.0, pH4.0 / pH10.0  
(**Must calibrate pH7.0 first, then pH4.0**)

Temperature Compensation : 10 to 40°C

Operating Temperature : 0 - 50°C (32-122°F).

Operating Humidity : Max. 90% RH.

Dimension : 130x70x20 mm (5.1x2.7x0.8 inch).

pH electrode : Any pH electrode with BNC connector can be used.

Standard Accessories : Instruction manual, Monitor Holder, AC Power Adaptor, pH4.0 and pH7.0 calibrating buffer solution each one.

### RESET

Press the Cal. knob while turn on the power can reset the PH monitor to the initial state.



pH electrode input BNC terminal can only connect with pH electrode, it is not allowed to connect with any other electrode.



Please use this tester away from the electronic ballast.

### WHY SHOULD WE KNOW pH RANGE

pH value shows the acid or alkaline state of water (pH value equals 7 is neutral, it is alkaline as pH value is greater than 7, and acid as pH value is less than 7), most of the fish can adapt to life in water around pH =7, but many species have special water preferences.

Such as:

species of pH < 7 : Discus, Amazon cardinals, preferences for pH=6.0 to 6.5

species of pH > 7 : Marine fish preferences for pH8.4 and African cichlids preferences for pH7.5 to 8.0

※ **THE RIGHT pH RANGE KEEP THE FISH RIGHT !**

### WHAT TO DO AS pH RANGE IS TOO LOW

The pH range of water should be shifted up, the methods of adjustment you can take: Use coral gravels substrate, anion exchange resin, add additives of powder, solution or tablets which can shift pH、KH and GH range up.

### WHAT TO DO AS pH RANGE IS TOO HIGH

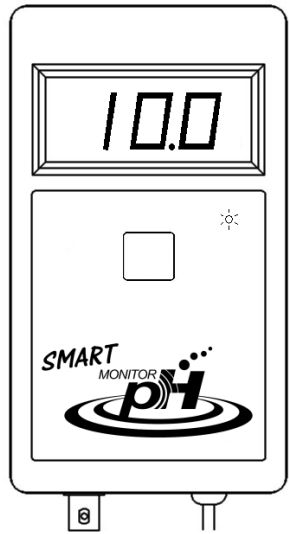
The pH range in water should be shifted down, the methods of adjustment you can take: Use weak-acid gravels substrate, cation exchange resin and higher portion of reverse osmosis water. Add additives of powder or solution which can shift pH range down.



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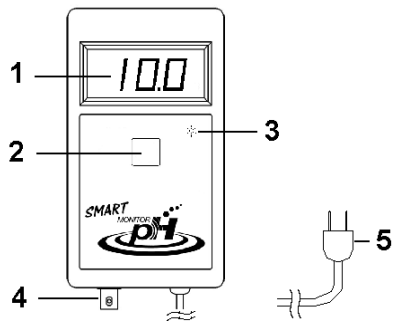
# 使用說明書

## SMART pH 監測器



使用 SMART pH 監測器前，請詳細閱讀說明書以確保測試的準確度

### 監測器名稱說明



- 1) 顯示器
- 2) pH 自動校正 / 設定按鈕
- 3) 低pH / 高pH範圍顯示
- 4) pH電極BNC接頭
- 5) 電源轉換器 AC100-240V / DC9V

### 使用方法

- 1) 接上電源插頭。(此設定步驟僅需要在第一次安裝或要改變水的溫度補償時使用)在閃示溫度補償值時，請按下按鈕調整待測水溫度(未按鈕5秒後會進入監測模式)，設定完溫度補償後5秒，可繼續設定高pH(紅燈)或低pH(綠燈)監測狀態，未按鈕5秒後即離開設定進入監測模式。(出廠設定為水溫25°C及低pH監測)
- 2) 將pH電極裝入輸入端(BNC接頭插入，右轉到底)。**先校正pH7.0再pH4.0。**
- 3) 將pH電極以蒸餾水稍作清洗擦乾後放入pH7.0校正液中，等數秒鐘顯示值穩定後，按壓校正鈕超過2秒鐘自動校正，顯示值為7.0。(pH6.0-8.0 會被校正為pH7.0)
- 4) 將pH電極從pH7.0校正液中取出以蒸餾水稍作清洗擦乾後，將pH電極放入pH4.0(或10.0)校正液中，等數秒鐘顯示值穩定後，按壓校正鈕超過2秒鐘自動校正，顯示值為4.0(或10.0)完成校正。(pH3.0-5.0會被校正為pH4.0；pH9.0-11.0會被校正為pH10.0，不在此範圍內的校正會視為錯誤而不被校正。)
- 5) 綠色指示燈代表設定低pH監測，監測值如超出pH6.5-7.5，則綠燈會閃示。紅色指示燈代表設定高pH監測，監測值如超出pH7.5-8.5，則紅燈會閃示。

### 備註：(清潔及保養)

- 1) 在清潔電極或儀器外觀時，請將DC電源插頭拔出，關閉電源。
- 2) pH電極置於水中不可超過電極帽高度，(如為可填充式電極，置於水中不可超過填充孔高度，以免水進入電極內而損壞)且定期(2-3星期)以軟毛牙刷輕輕清洗感應頭所附著之藻類或雜質，且作校正，以確保測量的準確性。不用時，電極請置於有3M KCL保存液(pH4校正液也可)之封套內，若有結晶乃屬正常現象。

- 3) pH 電極為一精密之玻璃製品，請勿敲擊。電極請勿用手及布類及酒精擦拭電極前端玻璃球，以免表面污染及玻璃球破裂損壞。
- 4) 本儀器僅供室內使用。

### 電器規格

- 電源規格：DC9V。(電源轉換器規格 AC100~240V / DC9V)
- 消耗功率：大約 0.5 瓦。
- 顯示器：0.56吋 - 3位數大型LED顯示器。
- pH 測量範圍：pH1.0~pH13.0。  
(超出範圍顯示 "---")
- pH 解析度(讀值)：0.1 pH。
- pH 精確度(誤差)：±(0.1%+2 digits) (25°C 環境下校正後)。
- 輸入阻抗：10<sup>12</sup> 歐姆。
- 自動校正：pH7.0，pH4.0 (或pH10.0)。  
(校正順序必須先pH7.0再pH4.0)
- 溫度補償：10~40°C
- 使用溫度限制：攝氏 0°~50°。
- 使用濕度限制：低於 90% RH。
- 外觀尺寸：外觀 130 x 70 x 20 mm。  
(5.1 x 2.7 x 0.8 inch)。
- pH電極：任何使用BNC接頭的pH電極均可使用。
- 標準附件：說明書、儀器掛架、電源轉換器、pH4及pH7校正液各一。

### 系統重置

如果想要重置系統為出廠設定，可以按著校正按鍵然後打開電源，就可以恢復出廠設定及標準校正。



電極輸入插座除了 pH 電極外，不可插入其它插頭。



控制器使用時請盡量遠離電子式安定器電燈，及不要使用同一電源插座，避免干擾本儀器。

### 為什麼要測pH值

pH值代表水質呈現酸或鹼性的狀態(pH值等於7為中性，pH值大於7為鹼性，pH值小於7為酸性)，大部分的觀賞魚都能適應生活在pH值=7左右的中性水質，但許多魚種有特別的水質偏好。

例如：

pH < 7的魚種：七彩神仙，亞馬遜燈科魚等，喜好pH = 6.0到6.5的水質。

pH > 7的魚種：海水魚喜好pH = 8.4，非洲慈鯛喜好pH7.5到8.0的水質。

※ 所以對的pH值，才能把魚養對！

### 水質過酸時怎麼辦

應該調升水中的pH值，常見調整方法可以採用：

使用珊瑚砂底床，添加pH或KH、GH調高液(粉)劑或錠片，使用陰離子交換樹脂等方法。

### 水質過鹼時怎麼辦

應該調降水中的pH值，常見調整方法可以採用：

使用弱酸性底土底床，增加RO(逆滲透)水使用比例，使用陽離子交換樹脂，添加pH調低液(粉)等方法。



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