PHPRO

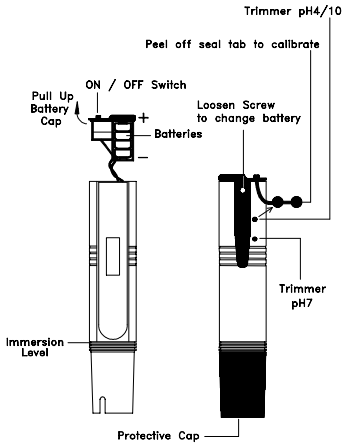
HIGH ACCURACY ELECTRO-CHEMISTRY TEST PEN

OPERATION MANUAL

SPECIFICATIONS

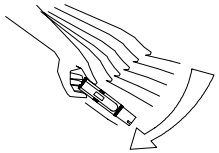
Range	:	0.00 to 14.00 pH
Resolution	:	0.01 pH
Accuracy	:	±0.03 pH
Battery	:	4 x 1.5V button cell (Alkaline A76 or equivalent)
Battery life	:	Approx. 200 hours (continuous)
Operating temperature	:	0° to 50°C
Temperature Compensation	:	Automatic from 0° to 70°C
Size (LxWxH)	:	170 x 32 x 15mm
Weight	:	Approx. 70 gm

PRODUCT LAYOUT



MAKING MEASUREMENT

1. Remove protective cap from bottom (See product layout)
2. To switch on the unit, slide the 'ON/OFF' switch located on top of the tester to 'ON'. If the unit was automatically shut off, depress twice to switch on.
3. Shake tester with a snap motion as shaking of a mercury thermometer before each test.



4. Dip tester into sample solution up to the immersion level. Shake the sensor area in solution to remove bubbles and wait for about a minute before readout.

5. If the sensor is dry, a slow response will result. Dip the sensor area in a cup of water or preferably pH7 calibration solution for 1-2 hours before testing again.
6. Always rinse the sensor area with water and blot it dry before and after each test.
7. Switch off the tester. Drip 1-2 drops of water into protective cap and cap the sensor before storing away.

NOTES ON MEASUREMENT

All pH sensors measure the hydrogen ion activity in solution, but if a solution is not stable, (e.g. tap water immediately taken from the tap) an erroneous reading may be resulted. This is because water contains other active substance like chlorine, which interferes with the hydrogen ion activity. To maintain an accurate reading, take measurement only from water left overnight. Avoid measuring in moving water or solution. Scoop water in a cup for measurement if possible.

In the presence of certain radio transmitters, this product may produce erroneous readings. If this occurs then measurements should be repeated at another location.

CALIBRATION

Your tester is factory calibrated. It is recommended to re-calibrate regularly to maintain the desired accuracy of the unit.

1. To conduct the two points calibration, determine your testing range to fall between the two calibration points. Choose either 7.00 & 4.01pH or 7.00 & 10.01pH calibration as calibration points.
2. To ensure accurate calibration, prepare two sets each of the calibration solutions pH7 and pH4 or pH7 and pH10 as the selected calibration points, one set for rinse and the other calibration.

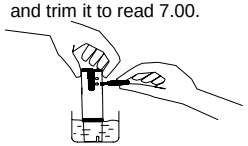
Order Code for buffer solution:

7010 for pH7 buffer
4010 for pH4 buffer
1010 for pH10 buffer

3. Remove protective cap and rinse sensor area with distilled water.
4. Shake tester with a snap motion as shaking of a mercury thermometer before each calibration.
5. Remove the seal tap as shown in product layout.
6. Rinse sensor area in pH7 rinsing solution then dip in fresh pH7 calibration solution.

CALIBRATION

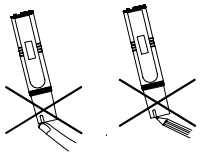
7. With the use of the provided screwdriver, locate the pH 7 trimmer at the back of the tester and trim it to read 7.00.



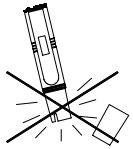
8. Rinse sensor with distilled water.
9. Rinse sensor area in pH4 or pH10 rinsing solutions then dip in another fresh calibration solution.
10. Stir again to remove bubbles and wait for reading to stabilize.
11. Locate the pH4 trimmer at the back of the tester and trim it to read 4.01 for pH4 solution or 10.01 for pH10 if using pH10 calibration solution.
12. Now repeat step 6 & 7. If reading is not repeatable, continue step 8 to 12 again.
13. Calibration is complete when readings are repeatable. Replace seal tap and rinse sensor area thoroughly before proceeding with further tests.

PRECAUTIONS IN HANDLING

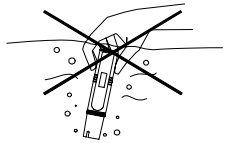
Do not touch, rub or scratch the sensor. It is very delicate and might break or loose sensitivity.



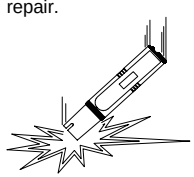
Do not store unit without the protective cap. Chemical in the unit will expire faster and thus shortening usage life span.



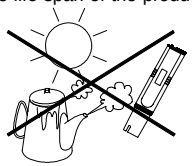
Do not submerge the unit underwater. Though the unit is splash proof and water resistant, it cannot come under high pressure underwater and is beyond repair if water get in unit. If dropped into water, retrieve immediately and wipe dry with a cloth.



Do not drop unit. The pH sensor is made of delicate glass material and will crack or break under impact, which is beyond repair.



Do not store unit under high temperature or direct sunlight. This will shorten the life span of the product.



Do not clean unit with thinner or solvents. This will damage the unit. Use only a damp cloth to clean unit if needed.

MAINTENANCE

- To change batteries, loosen screw from back of unit and pull out the battery case from top of unit (see layout). Replaces all four batteries accordingly and replace screw.
- If unit is not used or stored for a long period of time, the sensor will become dry. This will result in slow response to a stable reading. Soak the sensor area in a cup of tap water or preferably pH7 solution for 1-2 hours will restore sensitivity of the sensor.
- Keep in mind that all pH sensor age with time and usage. Therefore, re-calibration is necessary to maintain accurate reading.

Note that the pH sensor have a limited life span of about a year. When the unit fails to calibrate or response very slowly, it means that the unit should be replaced. It is not possible to repair broken, defective or expired unit.

GUIDE TO AQUARIUM CONTROL

Maintaining correct water chemistry is important for all aquariums. Too high or low pH will cause stress to marine habitat. Ignorance often causes death to marine habitat. The general recommended range for saltwater aquarium is **8.00** to **8.20pH** and for the fresh water aquarium is **7.00** to **7.40pH.**

While testing and adjusting pH value, take care not to overload the buffering capacity of the aquarium. Make adjustment in small incremental.

GUIDE TO POOL & SPA MAINTENANCE

pH test is critical for protecting the pool and is considered the best indicator of overall “pool health". Too high or low in pH levels can irritate swimmer eyes or skin, cause corrosion to pool equipment, stain and etch plaster pool surfaces, dissipate chlorine quickly, accumulate scale on pool equipment and can weaken chlorine sanitizing power.

Ideal pH range is 7.20 to 7.60 pH

- Add liquid acid if pH level is high.
- Add soda ash if pH level is low.

APPLICATIONS

- Water pollution control
- Pool & Spa maintenance
- Aquariums and Aqua-culture
- Hydroponics
- Plating industry
- Cooling tower & Boilers
- Photographic Lab.
- Beauty care products

OTHER PRODUCTS

Order Code		Range
ECO pH	:	0.0 ~ 14 .0 pH
ECOREDOX	:	-999 ~ +999mV
ECO TDS	:	10 ~ 1,990ppm
ECO TDS-2 (x100)	:	100~ 19900ppm
ECO µSIEMEN	:	10 ~ 1,990µS
ECO mSIEMEN	:	0.1 ~ 19.9 mS
TDS Check	:	10~1990 ppm
WATER PAL	:	0 ~ 800ppm
PureWaterPAL(ppm)	:	0.0 ~ 99.9ppm
PureWaterPAL (µS)	:	0.0 ~ 99.9µs
Horti Care TDS Check	:	100~ 10000ppm
Horti Care EC Check	:	0.0 ~ 10.0 EC
Horti Care cF Check	:	0 ~ 100 cF