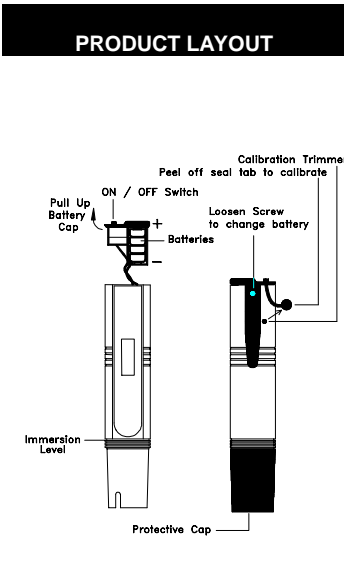


# ECO pH

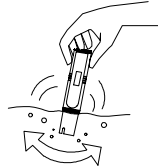
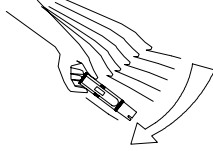
HIGH ACCURACY ELECTRO-CHEMISTRY TEST PEN

## OPERATION MANUAL

SPECIFICATIONS	
Range	: 0.0 to 14.0 pH
Resolution	: 0.1 pH
Accuracy	: $\pm 0.2$ pH
Battery	: 4 x 1.5V button cell (Alkaline A76 or equivalent)
Battery life	: Approx. 300 hours (continuous)
Auto Shut-off	: Approx. 15 minutes
Operating temperature	: 0° to 50°C
Size (LxWxH)	: 170 x 32 x 15mm
Weight	: Approx. 70 gm



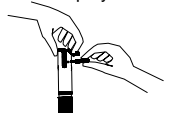
- MAKING MEASUREMENT**
- Remove protective cap from bottom (See product layout)
  - To switch on the unit, slide the 'ON/OFF' switch located on top of the tester to 'ON'. If the unit was automatically shut off, depress twice to switch on.
  - Shake tester with a snap motion as shaking of a mercury thermometer before each test.
  - 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.
  - 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.
  - Always rinse the sensor area with water and blot it dry before and after each test.
  - Switch off the tester and replace protective cap 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.

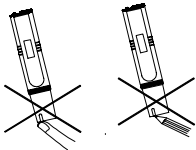
In the presence of certain radio transmitters, this product may produce erroneous readings. If this occurs then measurements should be repeated at another location.

- CALIBRATION**
- The tester is factory calibrated. But due to prolong storage, the unit should be re-calibrate the unit before use. Regular calibration is necessary to maintain the accuracy of the unit.
- Use only pH7.00 buffer solution for calibration. The attached 5ml bottle is for single use only.  
**Order Code : 7010**
  - Remove protective cap and rinse sensor area with water.
  - Shake tester with a snap motion as shaking of a mercury thermometer.
  - Pour the pH7 solution into cap to 1/2 level and insert the sensor till it overflows.
  - Remove the rubber seal tab. With the use of the provided small screw driver, locate the "Calibration trimmer" at the back of the tester and tune the display to read 7.0
  - Replace seal tab and rinse sensor with tap water. Discard solution in Cap and rinse with water.
  - Calibration is completed.

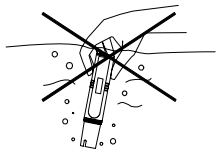


**PRECAUTIONS IN HANDLING**

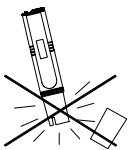
**Do** not touch, rub or scratch the sensor. It is very delicate and might break or loose sensitivity.



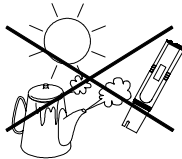
**Do** not submerge the unit underwater. Though the unit is splash proof and water resistant, it cannot come under high pressure underwater and is beyond repair if water get in unit. If dropped into water, retrieve immediately and wipe dry with a cloth.



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




**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**

- When the battery symbol  appear on the display, this indicates a low battery and only 2 hours of continuous use remain. Though the unit may continue to function, the accuracy of the unit will be affected beyond the 2 hours.
- 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 **8.0** to **8.2pH** and for the fresh water aquarium is **7.0** to **7.4pH**.

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.

**GUIDE TO HYDROPONICS NUTRIENT BALANCE**

The pH of a nutrient solution or a medium is important to plant growth. Every plant species has a preferred pH range in which it will grow best. If a plant is subjected to a pH outside its preferred range, retardation of growth and even death of the plant may result.

Most plants thrive well in a nutrient solution of between **5.5pH** to **6.5pH**. Hydroponics nutrient is best kept between **6.0pH** to **6.5pH**. (Note: Value may vary on plant species)

**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
pH Pro	: 0.00 ~ 14.00 pH
ECOREDOX	: -999 ~ +999mV
ECO TDS	: 10 ~ 1,990ppm
ECO TDS-2 (x100)	: 100~ 19900ppm
ECO $\mu$ SIEMEN	: 10 ~ 1,990 $\mu$ S
ECO mSIEMEN	: 0.1 ~ 19.9 mS
TDS Check	: 10~1990 ppm
WATER PAL	: 0 ~ 800ppm
PureWaterPAL(ppm)	: 0.0 ~ 99.9ppm
PureWaterPAL ( $\mu$ S)	: 0.0 ~ 99.9 $\mu$ S
Horti CareTDS Check	: 100~ 10000ppm
Horti Care EC Check	: 0.0 ~ 10.0 EC
Horti Care cF Check	: 0 ~ 100 cF