

# ECO REDOX

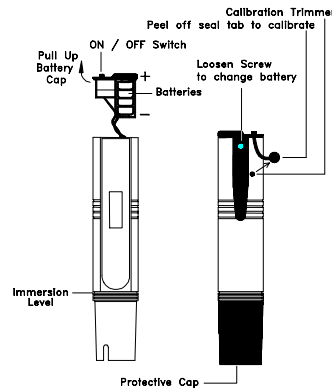
## HIGH ACCURACY ELECTRO-CHEMISTRY TEST PEN

## OPERATION MANUAL

### SPECIFICATIONS

- Range : -999 to +999 mV
- Resolution : 1 mV
- Accuracy :  $\pm 10$  mV
- Battery : 4 x 1.5V button cell (Alkaline A76 or equivalent)
- Battery life : Approx. 200 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

### PRODUCT LAYOUT

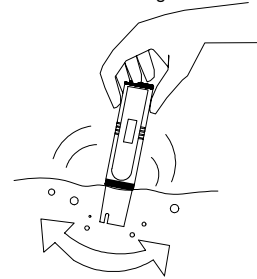


### MAKING MEASUREMENT

1. Remove protective cap from bottom (See product layout)
2. Press the 'ON/OFF' switch located on top of the tester to switch on. If the unit was automatically shut off, depress twice to switch on.
3. Scoop sample solution in a cup or glass filled up to 2inch or 5cm level.
4. Dip tester into sample solution up to the immersion level. Shake the sensor area in solution to remove bubbles and leave the unit to stay in solution for at least 15 to 20 minutes for a stable reading.
5. Take note not to remove sensor from the solution while taking reading. Otherwise it will take another 15 to 20 minutes for reading to stabilize.
6. Always rinse the sensor area with water and blot it dry before and after each test.
7. Switch off the tester and replace protective cap before storing away.

#### NOTES ON MEASUREMENT

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



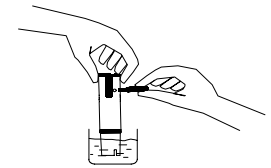
### CALIBRATION

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

1. Remove protective cap and rinse sensor area with water.
2. Use 475mV standard solution for calibration.

#### Order Code : 1002

3. Dip sensor area into the standard solution and shake the sensor area to remove bubbles and wait for a stable reading.
4. Remove the rubber seal tab and use the provided small screw driver, locate the "Calibration trimmer" at the back of the tester and tune the display to read 475

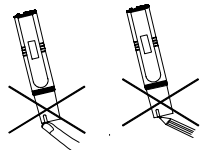


5. Replace seal tab and rinse sensor with tap water.
6. Calibration is completed.

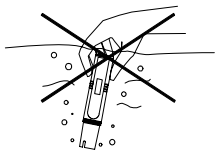
REV-C

### PRECAUTIONS IN HANDLING

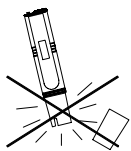
Do not touch, rub or scratch the sensor. It is very delicate and might break or loose sensitivity.



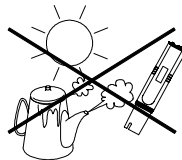
Do not submerge the unit underwater. Though the unit is splash proof and water resistant, it cannot come under high pressure underwater and is beyond repair if water get in unit. If dropped into water, retrieve immediately and wipe dry with a cloth.



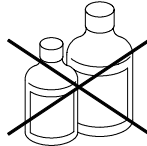
Do not store unit without the protective cap. Chemical in the unit will expire faster and thus shortening usage life span.




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.
- To improve performance of tester, clean the electrode periodically by rinsing it in 10% HCL for a maximum period of 5 seconds. Rinse sensor area thoroughly in distilled water before proceeding with more tests.
- Note that the unit 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

This tester is use to indicate the balance of electrons in the aquarium water. Water with a high Redox potential is of high quality, containing much surplus oxygen and complete mineralized of all organic waste material. Water with a low Redox potential would in contrast, be slow moving and cloudy, and would contain waste material that is incompletely broken-down. This waste is harmful and causes stress or even death to aquatic life.

**Marine - 300mV to 450mV**  
**Fresh water - 200mV or higher**

This reading only serve as a guide and individual life species will have a different reading. Higher reading is preferred.

### GUIDE TO POOL & SPA MAINTENANCE

This tester is commonly use to indicate sanitize residual in pool water. It does not measure the sanitized residual itself, but rather the electrical potential created by the presence of sanitizing agent -- this is call the Oxidation-Reduction Potential or Redox Potential in short. When the voltage reading is 650 mV, there is sufficient active sanitizing agent in the water to protect swimmers and bathers. Below is a guide for chlorine sanitizing control:

**LOW - 600mV**  
**IDEAL - 650mV to 750mV**  
**HIGH - 900mV**

Fluctuation in pH will affect Redox reading.

**\*pH MUST BE 7.4 TO 7.6 TO OBTAIN AN ACCURATE REDOX READING**

### APPLICATIONS

- Oxidation of cyanide and chromatic waste
- Bleaching of pulp
- Manufacture of bleach
- Water pollution control
- Reduction of chromate waste
- Pool & spa maintenance
- Aquarium waste control

### OTHER PRODUCTS

Order Code	Range
ECO pH	: 0.0 ~ 14.0 pH
pH Pro	: 0.00 ~ 14.00pH
ECO TDS	: 10 ~ 1,990ppm
ECO TDS 2 (x100)	: 100~10,000ppm
ECO $\mu$ SIEMEN	: 10 ~ 1,990 $\mu$ S
ECO mSIEMEN	: 0.1 ~ 19.9mS
WATER PAL	: 0 ~ 800ppm
PureWaterPAL(ppm):	0.0 ~ 99.9ppm
PureWaterPAL ( $\mu$ S) :	0.0 ~ 99.9 $\mu$ S
TDS Check	: 10 ~ 1990 ppm (Direct display)
Horti Care TDS Check :	100~ 10000ppm
Horti Care EC Check :	0.0 ~ 10.0 EC
Horti Care cF Check :	0 ~ 100 cF