

HortiStick

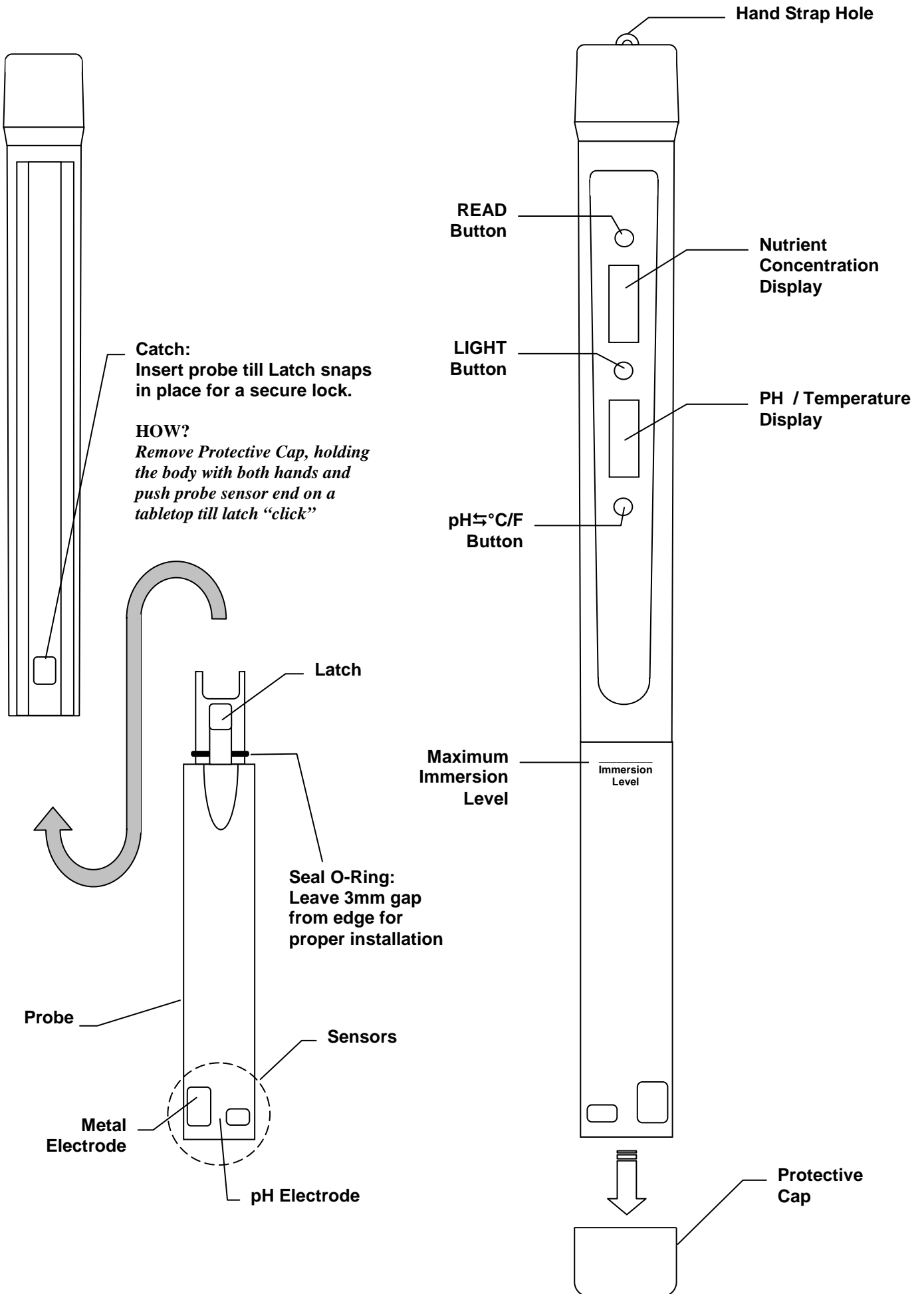
3-in-1

Nutrient Meter

ppm

OPERATIONS MANUAL

PRODUCT INSTALLATION & DESCRIPTION:



SPECIFICATIONS:

	PH	ppm	Temp.
Operating Range	: 0 to 14pH	0 to 1990ppm	32 to 122°C
Display Resolution	: 0.1pH	10ppm	0.1°C
Accuracy	: ±0.2pH	±5% F.S.	±0.5°C
Temperature Compensation	: Automatic 0 to 50°C / 32 to 122°F		
Operating Temperature	: 0 to 50°C / 32 to 122°F		
Battery Type	: 4 x 1.5V AA size battery		
Battery Life	: Approximately 50 hours (continuous use)		

INSTALLING THE UNIT:

1. The probe is disconnected during shipment. Insert the probe as the diagram, holding the body and press the probe tip on a tabletop till it securely lock in place.
2. The battery cap is opened to disconnect the batteries during shipment.
3. Turn the battery cap clockwise to close and connect the batteries.
4. A Hand-strap is provided. Install the hand-strap on top of the battery cap by looping it via the hand-strap hole.

SETTING TEMPERATURE DISPLAY UNITS:

1. Temperature display unit is factory preset to Fahrenheit. To set temperature display in Celsius, press and hold-down both the **pH↔°C/F** and **LIGHT** button until it beeps. °C will appear on the display.
2. After the units of measurement are set, it will retain the last setting until you reset it.

CALIBRATION:

Calibration should be made as frequently as possible or before a series of test. ***Soak the sensors in tap water for 5 minutes first.***

CALIBRATING NUTRIENT CONCENTRATION READINGS:

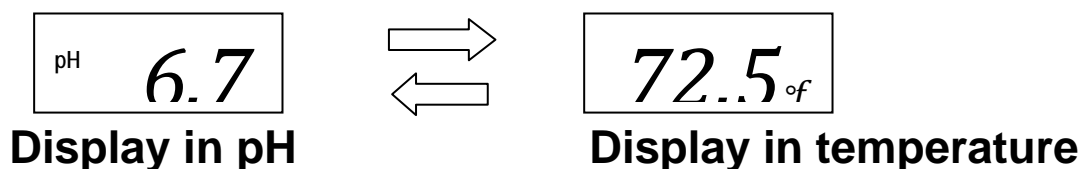
1. Use only standard KCl solution **1413 μ S** or **1.4EC/mS** (equivalent to 990ppm KCl) for this calibration.
2. Rinse the sensor area with water and **dip for 5 minutes**, then dip the sensor into the calibration solutions.
3. Press and hold-down both **LIGHT** button and **READ** button until **CAL** appears on the display.
4. The display will show in a blinking mode **990**.
5. Wait for the meter to sense a stable reading until it stops blinking.
6. Press the **READ** button to confirm the calibrated reading **990**, otherwise repeat calibration.
7. When reading is confirmed, calibration is completed.

CALIBRATING PH READINGS:

1. Use only pH7.0 buffer solution for pH calibration.
2. Rinse the sensor area with water and dip the sensor into the calibration solutions.
3. Press and hold-down both **pH \leftrightarrow °C/F** button and **READ** button until **CAL** appears on the display.
4. The meter will automatically sense and display **7.0** in a blinking mode.
5. Wait for the meter to sense a stable reading until it stops blinking.
6. Press the **READ** button to confirm calibrated reading **7.0**, otherwise repeat calibration.
7. When reading is confirmed, calibration is completed.

MAKING MEASUREMENT:

1. Due to storage in different environment, the meter should be re-calibrated before use.
2. ***Always soak the sensor in tap water for about 5 minutes before making measurements or calibration.***
3. Dip the sensor area up to immersion level in the nutrient solution and press the **READ** button.
4. The displays will show the digits blinking, while the meter senses for a stable reading.
5. When the reading stops blinking and beeps, a stable reading is established, you can record the reading.
6. *If large temperature difference between the meter and the solution is apparent, then dip the meter in the solution for at least 20 minutes before beginning any measurement. This is to allow time for the temperature compensation to react fully.*
7. To display temperature reading, press the **pH↔°C/F** button once will set display to read in temperature. To return to pH display, press the button once.



8. The display will light up after each reading is established. It will automatically switch-off after 20 seconds from the last button pressed. Pressing the **LIGHT** button once will switch it on.
9. To switch off the meter, press and hold the **READ** button for 3 seconds.
10. Always replace the Protective Cap after use and before storage.

Notes on measurements

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

ERROR CODES

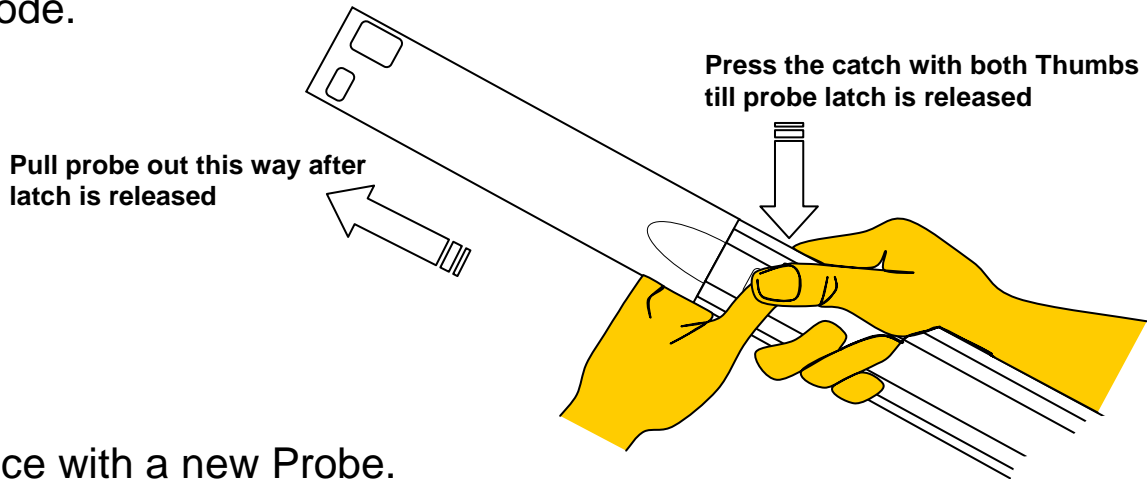
1. When **Erb** or **Err** appear during measurement or calibration, it means the meter cannot establish a stable reading during calibration. This could mean an expired or defective sensor. Replace with a new Probe.
2. When “- - -” or “ 0 ” appear on the display, it means the solution is out of the measuring range of the product. For Nutrient concentration display, it means the solution is too concentrated that is out of the meter’s measuring range. Dilute the solution and re-test. This will also happen to pH display when it is not dipped into water. This is a normal behaviour and once the sensor is in contact with any liquid, a digital reading will appear. Otherwise, the pH sensor could be expired.

MAINTENANCE & PROBE CLEANING

1. If the unit had been stored for a long period of time, the probes and sensors will become dry. This will result in sluggishness to a stable reading or display ERC or ERB during calibration. To recover from this condition, soak the probe sensor area in tap water for about 10 to 15 minutes before calibration and testing.
2. Do not use strong solvents (e.g. acetone, carbon tetrachloride etc.) to clean the glass pH electrode. Be sure to recalibrate after cleaning.
3. If the sensors become coated with oil or grease, carefully rinse it in warm tap water using a non-filming dish washing detergent for 10 minutes. Do not use automatic or electric dish washing detergent. Rinse thoroughly with fresh tap water followed by three rinses with distilled water. Soak the electrodes in pH7 solution for 20 minutes after this cleaning procedure.
4. If the metal electrodes become dirty and affect accuracy of nutrient measurement even after calibration, use a cotton bud dipped in alcohol and gently rub on both metal sensors for 5 seconds. Be careful not to touch the pH glass sensor with alcohol, as this will damage the pH sensor. Rinse it in tap water immediately and before the alcohol dries out. Re-calibrate after cleaning. If this procedure does not recover the sensor’s accuracy, the sensor should be replaced.

PROBE REPLACEMENT:

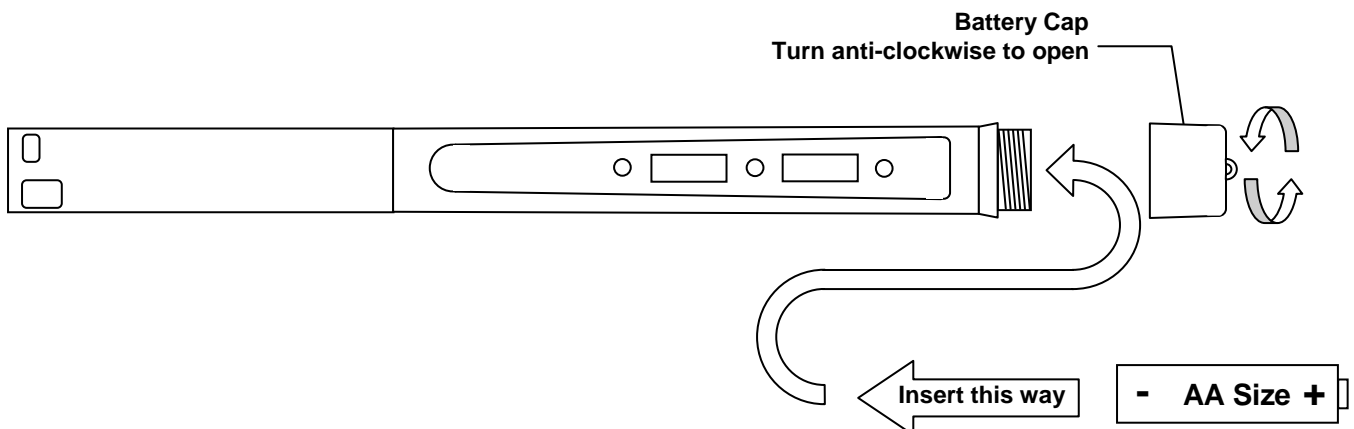
1. The unit comes with a replaceable electrode. Keep in mind that the pH electrode will age and degrade over time subject to usage and storage conditions. The electrode has a usage life of about 1 year. When the pH reading becomes erratic or fails to be calibrated, the Probe should be replaced.
2. To replace Probe, turn unit to the back and press down the catch using both thumbs as shown. Once latch is released, pull out the electrode.



3. Replace with a new Probe.
4. Re-calibrate the unit before proceeding with any tests.

BATTERY REPLACEMENT

1. When the low battery sign persistently appear on the display, it indicates that the meter has a remaining 2 hours of usage, after which, reading accuracy will be affected.
2. To replace battery, unscrew the Battery Cap on the unit.
3. Slide out the batteries and replace all four 1.5volts AA size battery according to the direction shown.



LIMITED WARRANTY

Trans Instruments (S) Pte. Ltd. warranties the main unit for a period of **12 months** and the probe for a period of **12 months** from date of purchase against all defects in material and workmanship. This warranty does not apply to the abuse, misused or tempering of the product.

If repairs or adjustments are required, upon sending, the product must be properly packaged and insured against possible damage or loss in the shipment. Original **Purchase Invoice** or **Receipt**, with **product name and Serial number written MUST** be accompanied in returned product or else warranty is considered void.

Send the product via courier service or parcel postage with freight fully paid. After verification that the product is within warranties, it will be repaired and returned free of charge. Trans Instruments reserve the rights of final decision of the verification. The product will be returned via courier service on freight collect basis.