AGROWTEK
Technology to Help You Grow

Hydroponics & Water Process Sensor Probes
pH | O.R.P. | D.O. | EC |

Specifications

Probe Type	pH	ORP	DO	EC	Temperature
Range	0-14 pH	+/-2000 mV	0 - 20.00 mg/ml	0-5000 uS	-20 - 60°C
Connection Type	BNC	BNC	BNC	Leads	Leads
Warranty	90 Days	90 Days	90 Days	1 Year	1 Year

Warranty

Agrowtek Inc. warrants that all manufactured products are, to the best of its knowledge, free of defective material and workmanship and warrants this product from the date of purchase. for the term specified in the specifications table. This warranty is extended to the original purchaser from the date of receipt. This warranty does not cover damages from abuse, accidental breakage, or units that have been modified, altered, or installed in a manner other than that which is specified in the installation instructions. Agrowtek Inc. must be contacted prior to return shipment for a return authorization. No returns will be accepted without a return authorization. This warranty is applicable only to products that have been properly stored, installed, and maintained per the installation and operation manual and used for their intended purpose. This limited warranty does not cover products installed in or operated under unusual conditions or environments including, but not limited to, high humidity or high temperature conditions. The products which have been claimed and comply with the aforementioned restrictions shall be replaced or repaired at the sole discretion of the Agrowtek Inc. at no charge. This warranty is provided in lieu of all other warranty provisions, express or implied. It is including but not limited to any implied warranty of fitness or merchantability for a particular purpose and is limited to the Warranty Period. In no event or circumstance shall Agrowtek Inc. be liable to any third party or the claimant for damages in excess of the price paid for the product, or for any loss of use, inconvenience, commercial loss, loss of time, lost profits or savings or any other incidental, consequential or special damages arising out of the use of, or inability to use, the product. This disclaimer is made to the fullest extent allowed by law or regulation and is specifically made to specify that the liability of Agrowtek Inc. under this limited warranty, or any claimed extension thereof, shall be to replace or repair the Product or refund the price paid for the Product.

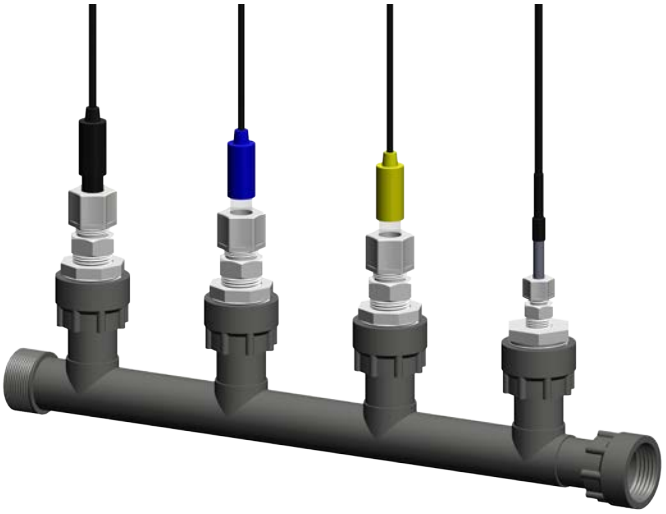
Installation Instructions

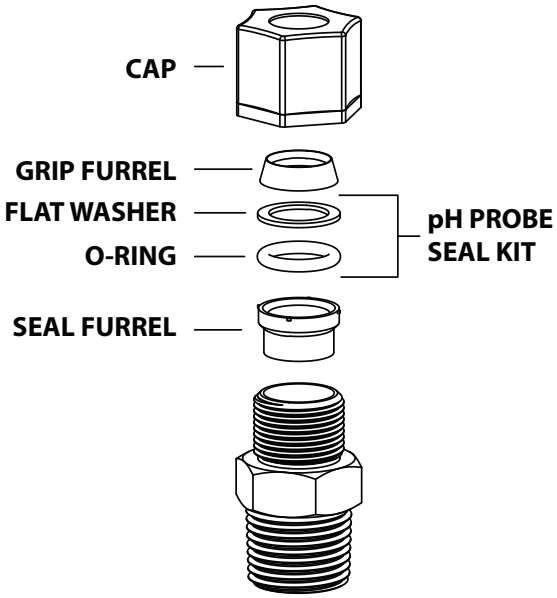
PBX Probe Manifolds

A probe manifold with recirulating pump (3-20gpm) is recommended for best sensor accuracy.

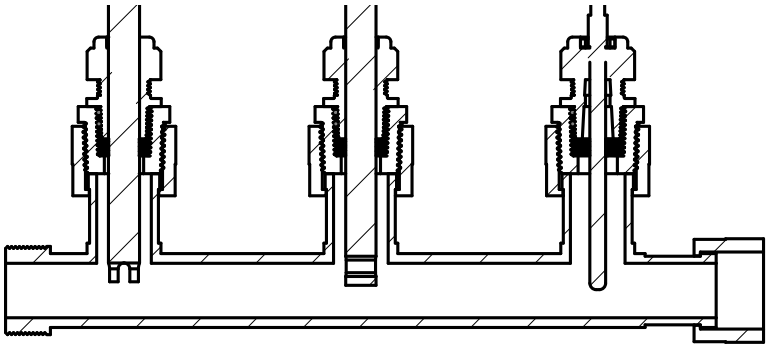
Probe manifolds include sealing glands which retain the probes in the manifold under pressure, and seal the probe to the gland to prevent leaks.

pH Probes
A special seal kit is included / available for pH probes which have a small parting line along the body of the probe. The seal kit includes a washer and o-ring to be installed in the gland as shown in the diagram. Smooth body probes do not require the seal kit.



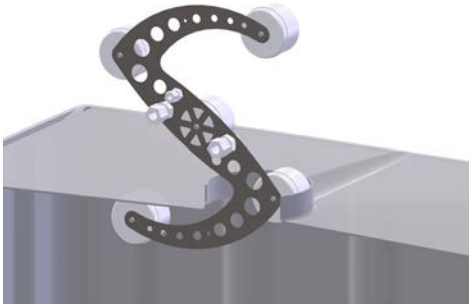


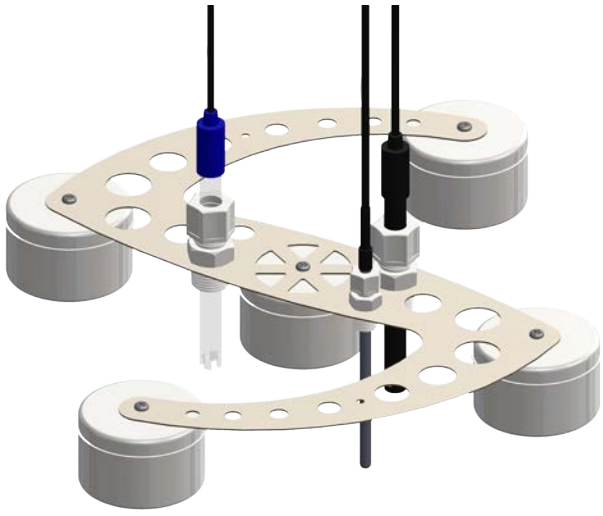
NOTE: For flow rates above 5 gpm, ensure probe tips are raised out of the flow path to prevent turbulence altering the sensor readings.



PPX Probe Pontoons

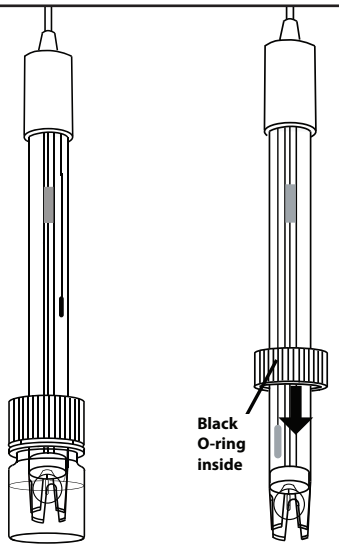
Probe pontoons allow probes to be floated in tanks or other bodies of water. Designed to be stable yet still able to enter small openings with the unique s-shape design.





pH & ORP Probe Preparation

Probe Shipping & Storage

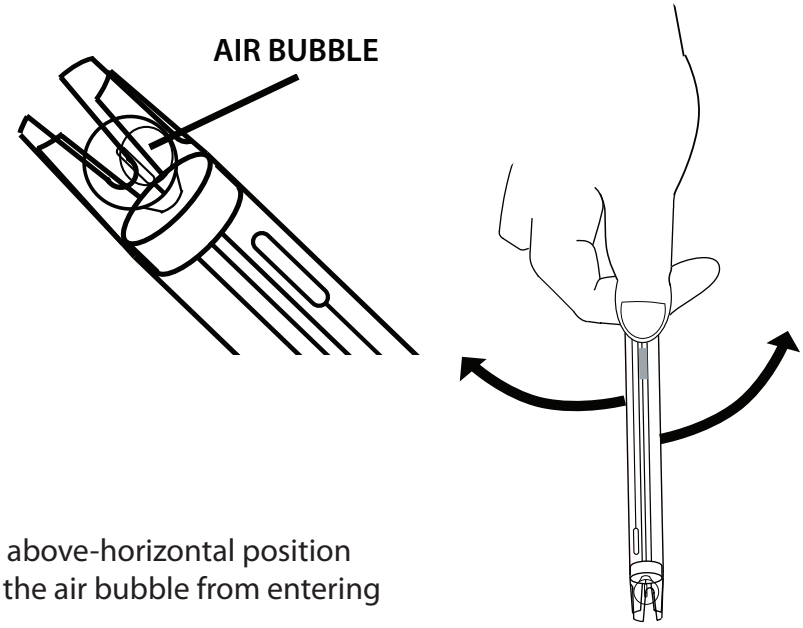


pH & ORP probes are shipped in a plastic bottle containing a solution of pH 4 buffer and potassium chloride. The electrode should remain in the bottle until it is used.

If the electrode is used infrequently, the bottle and its solution should be saved and the electrode stored in it. If the solution in the soaker bottle is missing, fill the bottle with pH 4 buffer.

Take out electrode by loosening plastic top on bottle counter-clockwise and pulling electrode out. Slide cap and O-ring off electrode and save.

Air Bubble

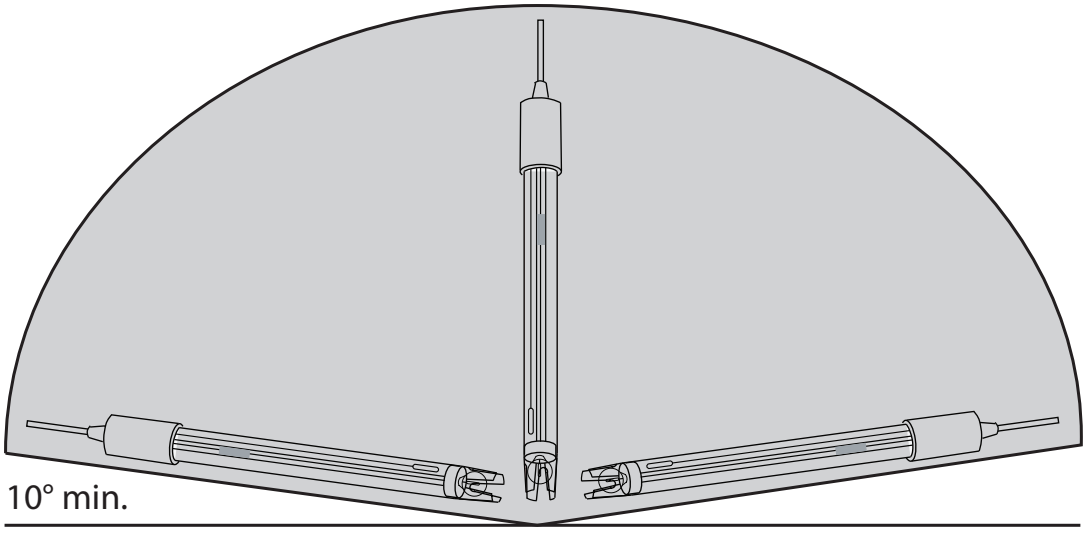


During shipment the air bubble in the electrode's stem may move into the bulb area.

If bubbles are seen in the bulb area, hold the electrode by its top cap and shake while pointed downward.

⚠ Installation/Operation Angle

pH & ORP sensor probes must be installed in an above-horizontal position with the probe tip facing downward to prevent the air bubble from entering the the bulb area.



Dissolved Oxygen Probe Preparation

Probe Shipping & Storage

DO Probes should be stored in air within the containing bottle, or with electrolyte solution in the bottle.

Take out electrode by loosening plastic top on bottle counterclockwise and pulling electrode out.
Slide cap and O-ring off electrode and save.

Filling & Preparation for Use

1. Remove the cap from the end of the probe. A thin clear polymer film is at the end of the cap.
2. Use the dropper to fill the cap with electrolyte solution.
3. Tap the cap to remove any air bubbles.
4. Carefully install the cap onto the probe avoiding air bubbles.

IMPORTANT: If a BNC shunt adapter has been provided with your DO probe, install it between the probe and the transmitter's BNC jack.

Replacing the Membrane

It may be necessary to replace the membrane when it is damaged, fouled or wrinkled to restore proper performance. Several spare membranes should be included with each probe.

1. Remove the cap from the end of the probe.
2. Twist the retaining ring off of the end of the cap which keeps the membrane in place.
3. Discard the old membrane.
4. Place the cap on a flat surface and center a new membrane on top of the cap.
5. Place the retaining ring on top of the cap & membrane, then press squarely down until seated.
6. Ensure the membrane is without wrinkles or damage, then fill & install the cap on the probe.

Probe Maintenance

Probes require periodic cleaning, reconditioning and calibration for reliable service.
See calibration section of specific product manual for details on performing calibration service after cleaning.

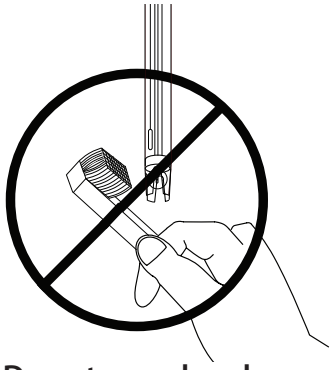
Probe Cleaning

Coating of the pH or ORP bulbs can lead to erroneous readings including shortened span (slope). Coatings and blockages in the EC sensor can cause incorrect readings. The type of coating will determine the cleaning technique.

Soft coatings can be removed by vigorous stirring or by the use of a squirt bottle.

Organic chemical or hard coatings should be chemically removed. 5-10% hydrochloricacid (HCl) soak for a few minutes and often removes many coatings.

If cleaning does not restore pH sensor performance, reconditioning may be tried.



Do not use a brush or abrasive on pH, ORP, DO or EC probes.

pH Probe Reconditioning

When reconditioning is required due to electrode aging the following chemical treatments can be tried. They are presented in the order of the severity of attack on the pH glass and may not improve (and in some cases actually further deteriorate) electrode performance.

⚠ DANGER: Use proper precautions when handling these hazardous chemicals. Ammonium bifluoride and HF (hydrofluoric acid) are extremely hazardous and should only be used by qualified personnel.

Reconditioning Method 1
Immerse the electrode tip in 0.1 N HCl for 15 seconds, rinse in tap water and then immerse tip in 0.1 M NaOH for 15 seconds and rinse in tap water. Repeat this sequence three times and then recheck the electrode's performance. If performance has not been restored, try method two.

Reconditioning Method 2
Immerse the tip in a 20% solution of NH4F-HF (ammonium bifluoride) for two to three minutes, rinse in tap water and recheck performance. If performance has not been restored, try method three.

Reconditioning Method 3
Immerse electrode tip in 5% HF for 10-15 seconds, rinse well in tap water, quickly rinse in 5N HCl, rinse well in tap water and recheck performance. If performance has not been restored, it is time to get a new probe.