

Turtle Tough ULTRA Series: DO Sensors - Membrane Replacement

IMPORTANT NOTE BEFORE CHANGING MEMBRANE!

The TT-ULTRA-DSS-DO-GAL-SUB sensor should not be taken apart for service unless the membrane is damaged, the response (slope) is significantly reduced by fouling or deposits on the membrane that cannot be cleaned off. This is typically only the case after some prolonged period of use or an exceedingly aggressive process condition during a shorter time.

PREPARATION

Unscrew the cap, rinse with water and clean the anode ONLY with a PLASTIC scouring pad.

NEVER USE A METAL SCOURING PAD ON THE ANODE!

If the cathode is tarnished it can be cleaned with a 600-grade wet-or-dry paper.

DO NOT POLISH THE CATHODE!

VALIDATION TEST

After the anode and (if necessary, the cathode) have been cleaned it is possible to perform a simple test to ensure the integrity of the sensor. Dry the top part of the sensor quite thoroughly, especially the cathode and the area surrounding it. Measure the output of the sensor by connecting it to one of its compatible transmitters (listed in the troubleshooting section). In dry conditions, it should show zero ppm on the display. If your display does not read zero (or very near zero) contact the factory for assistance.

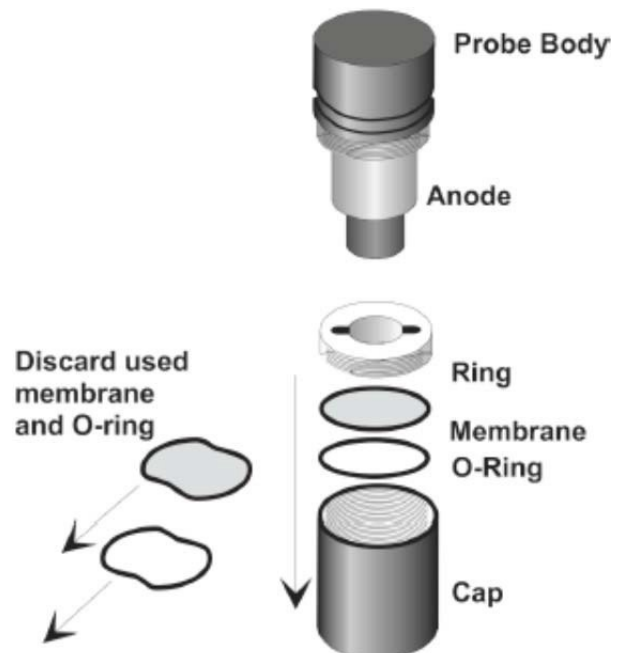
MEMBRANE REPLACEMENT PROCEDURE:

See drawing to right for all referenced components in instructions:

1. Use the tool provided to unscrew the ring.
2. Remove the used membrane and O-ring.
3. Rinse the cap and ring. Dry both parts thoroughly.
4. Put a new O-ring in the bottom of the cap.
5. Put a membrane on top of the O-ring.
6. Replace ring & tighten it firmly with the supplied tool.

PRECAUTIONS AND CAVEATS:

- It is very important that all parts must be clean & dry before performing this procedure.
- Membrane must not be wrinkled before or after it is installed. If the membrane is wrinkled at any point in time it must be replaced with a new membrane immediately.
- Fill the cap to the brim with electrolyte. Hold probe upright & slowly screw on cap until it is completely flush. Some electrolyte solution may leak out during this step.
- Wait one hour before performing a calibration after changing the membrane. For best results calibrate once again approximately 24 hours after membrane is changed as the galvanic DO cell will have reached full equilibrium by this point in time.



MAINTENANCE:

The probe's membrane must be kept free from deposits. A film composed mostly of bacteria will cover ALL surfaces in a biologically active system. This bacteria film acts as a diffusion barrier for the oxygen that must diffuse through the membrane. For industrial type process solution, the most likely form of contamination and build-up will be particulates and solids from the solution if the media has high turbidity or viscosity or is an abrasive slurry in nature. The membrane must, therefore, be cleaned at regular intervals, the frequency depending on the actual conditions.

Cleaning can be performed with a cloth or soft paper. The membrane is strong and not easily damaged, but do not try to scratch it clean with a fingernail! There is no need to exchange the electrolyte regularly, and there is no sensor element that will need replacing!

Note: It is good practice to stock spare components such as O-rings, membranes and electrolyte as this enables you to replace a damaged component immediately. If desired, you could even stock a spare probe which will reduce time if the current sensor is mechanically destroyed, damaged or lost. A spare probe can be kept ready-to-use for years at a time if stored in the proper manner and conditions. Spare probes should be stored in a cool, dry place without any electrolyte (filling solution) in the cap (completely dry). When a dry, unfilled spare probe is taken from stock for use, follow the steps outlined on the previous page to get it ready for installation.

TROUBLESHOOTING:

The slope of a functioning probe is typically found to be between 1.0mV and 2.0mV, with it being closer to the latter after an electrolyte refill. However, as the sensor deteriorates, the value of the slope will move closer to 1.0mV. At any point, if the slope is below 1.0mV, the sensor is not suitable for use and would need to be returned to the factory.

To determine the slope of the sensor, you may connect it to any of the following compatible devices:

1. HFC (Handheld Field Communicator)
2. ULTRA TOUCH series analyser
3. HYBRID TOUCH series controller

OTHER RESOURCES:

For more information regarding sensor maintenance and membrane replacement, please visit the Turtle Tough website, which contains multiple documents and videos demonstrating how to best take care of your sensor.