

Instrumentation Northwest, Inc. (INW)

APPLICATION NOTE

CHANGING BATTERIES AND REMOVING DEBRIS FROM END CONE ON THE AQUISTAR® SMART SENSORS January 2009

Introduction

Purpose of this document is two-fold:

- 1) To detail the steps for changing batteries in the Aquistar® Smart Sensors.
- 2) To detail removal of debris from end cones on Aquistar® Smart Pressure Sensors.

INW Smart Sensors come in two housing types – a twist open version and a set screw version. Directions follow for each type separately.

Changing Batteries

To change batteries, the housing for the sensor must be opened. Because there is sensitive electronic circuitry inside the housing, **battery changing must be done in a clean, dry environment to avoid contamination or moisture damage to the circuitry.**

The sensor uses two standard AA Alkaline batteries.

Twist Open Housing

Opening the Housing

Open the housing by removing the top-cap, as outlined below. The top-cap is the connector between the tube housing the sensor and the cable.

1. Twisting gently, unscrew the top-cap.
2. Gently separate the top-cap from the body of the sensor. (See Figure 2.) Top-cap remains attached to body via several colored wires.

Caution! Pulling forcefully on the top-cap can pull the insides out of the sensor or snap the connections inside. Removing the circuit board or pushing on the surface of the pressure element **may void your warranty.**

Note: O-rings provide a watertight seal for the sensor housing. Take care not to nick or otherwise damage these O-rings.

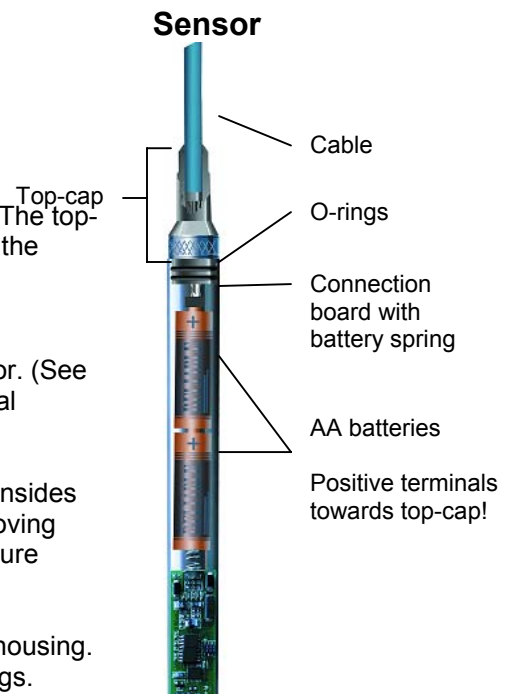


Figure 1: Twist Open Housing



Figure 2: Remove top-cap

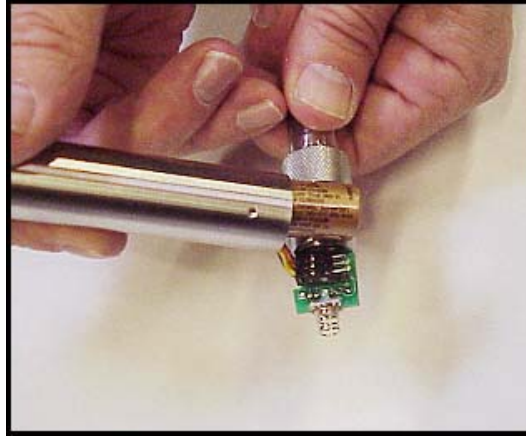


Figure 3: Slide batteries out

Replacing the Batteries

3. Tip housing over and gently slide batteries out.
4. Insert new batteries - **positive terminals towards the top-cap**.
5. Replace and retighten top-cap.

Set Screw Housing

Opening the Housing

Open the housing by removing the top-cap, as outlined below. The top-cap is the connector between the tube housing the sensor and the cable.

1. Remove the two set screws at the top of the housing tube, using a 1/16" allen wrench.
2. Very gently work the top cap loose. Note: Two O-rings provide a watertight seal for the sensor housing and often seal tightly. Inserting the blade of a flat screwdriver between the top-cap and the housing and twisting gently can help to release the O-rings' seal. Then rock the top-cap back and forth, while applying a steady, but controlled, upward pressure.

Caution! Pulling forcefully on the top-cap can pull the insides out of the sensor or snap the connections inside. Removing the circuit board or pushing on the surface of the pressure element **may void your warranty**.

Note: O-rings provide a water-tight seal for the sensor housing. Take care not to nick or otherwise damage these O-rings.

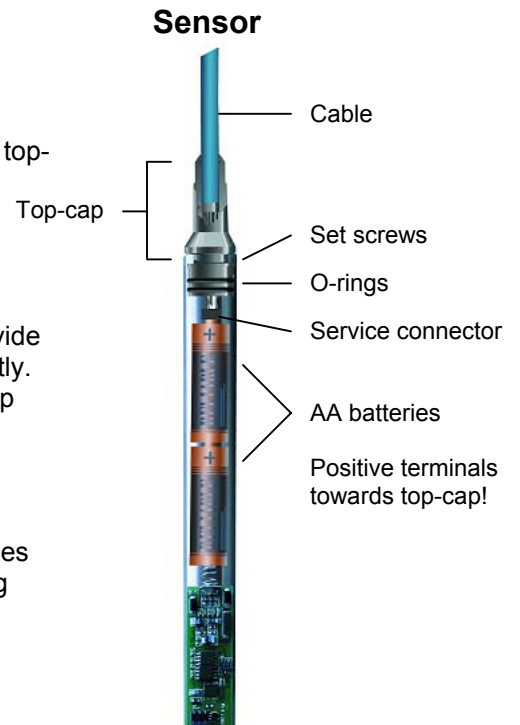


Figure 4: Set Screw Housing

Replacing the Batteries

3. Remove the black service connector. (See photos below.)
4. Tip housing over and gently slide batteries out.
5. Insert new batteries - positive terminals towards the top-cap.

Re-sealing Housing

6. Replace service connector. Note: this connector is keyed and can only be connected in one direction.
7. Carefully wrap the cable around the slot in the connector board.
8. Replace top-cap and secure with set screws.



Figure 5: Service Connector Connected

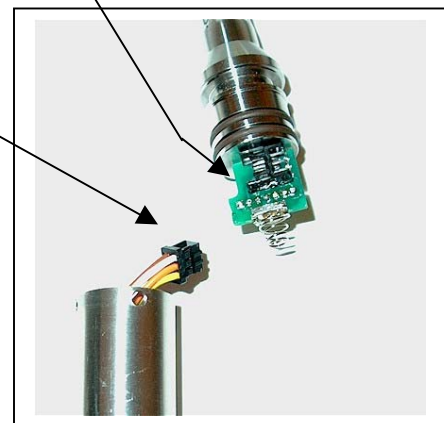


Figure 6: Service Connector Released

Removing Debris from End Cone (Pressure Sensors Only)

At times mud, silt, or other debris may foul the water inlets to the pressure sensor. The end cone can be removed to clean out the debris

Twist Open Housing

1. Gently twist off end cone portion only – do not twist off pressure element!
2. Remove debris. **Taking care not to poke anything into sensor.** This can damage the sensor element and void the warranty.
3. Replace and retighten end cone.

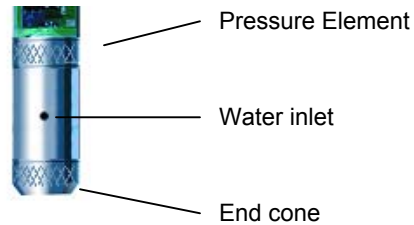


Figure 7: Twist Open Housing

Set Screw Housing

1. Remove the two set screws at the bottom of the housing tube, using a 1/16" allen wrench.
2. Gently remove the end cone.
3. Remove debris. **Taking care not to poke anything into sensor.** This can damage the sensor element and void the warranty.
4. Replace end cone and secure with set screws.

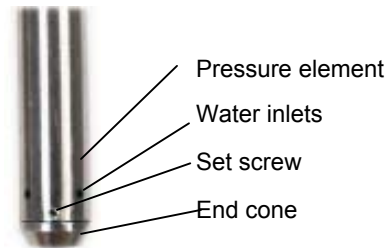


Figure 8: Set Screw Housing

Instrumentation Northwest appreciates any comments you may have regarding this application note. Please contact:

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