

## Installation of $\mu$ LPR Sensors and Analatom AN110 Corrosion Monitor (Potentiostat/DAQ)

### I. Installation of $\mu$ LPR Sensors, when **NOT ADHESIVE TAPE BACKED**

- 1) Clean surface on structure where sensor is to be located with alcohol (IPA) or degreasing solvent, and let dry completely.
- 2) Carefully dispense equal amounts of the supplied industrial epoxy and mix well.
- 3) Wearing gloves, apply thin layer of epoxy to the back of the sensor (not the sensor grid side). Then carefully scrape off the excess from the whole backside of the sensor leaving a very thin layer.
- 4) Carefully place sensor in desired location and apply firm, vertical pressure to the sensor's entire top surface, protecting sensor grid area from any contamination.
- 5) Using a clean cotton swab gently brush the top sensor area to force out (from backside) any excess epoxy. Be sure to never contaminate the sensor grid area with epoxy.
- 6) Excess epoxy at the sensor edges can be carefully wiped up using clean cotton swabs. Swab away from the sensor grid.
- 7) Hold the sensor in place until the epoxy sets; which should take approximately 5 minutes at room temperature.

It is highly recommended to practice the epoxy application procedure using the supplied dummy  $\mu$ LPR sensors and plastic board. Carefully observe how much adhesive is used and how well it disperses, and adjust your method accordingly. Also, note whether any adhesive is on the sensor grid itself. This is unacceptable and will hinder proper sensor functioning. When installing  $\mu$ LPR sensors, it is highly recommended to change gloves for each new sensor to ensure no contamination of the sensors with epoxy occurs from a dirty pair of gloves.

**NOTE 1:**  $\mu$ LPR corrosion rate sensors are installed under the structure's protective coating, where they also give an indication of coating integrity/degradation. Time-of-Wetness (ToW) sensors are installed above the protective coating.

**NOTE 2:** For adhesive tape backed sensor installation method, only perform #1 above, then remove liner from adhesive tape, and press sensor onto surface with gloved finger.

**NOTE 3:** If possible, when affixing ToW sensor cables to the structure, 1.) the sensor end should be oriented upward to allow for proper drainage down the sensor and continuing down the flex cable; and 2.) the flex cable should be laid out to form a drip loop with the connector end located above the drip loop.



**NOTE 4:** When affixing the Relative Humidity & Temperature sensor cable to the structure, the sensor end should be oriented slightly downward to allow for proper drainage of any condensing moisture occurring inside the acrylic end tube.

## II. Installation of Analatom AN110 Corrosion Monitor (Potentiostat/DAQ)

- 1) Identify a suitable mounting location where monitor will lie flat against a vertical surface with the 6-connector (2x3) end facing downward.
- 2) Using acceptable fasteners, straps, or tie wraps, affix monitor to structure.
- 3) Only uncover those monitor connectors (by removing protective end caps or a portion of side protective tape) that will actually be used during the installation.
- 4) Starting with Channel 1, connect the corrosion rate/ToW sensor cable male connectors to the monitor channels labeled Channel 1 - Channel 8. The subminiature round connectors plug into the side of the monitoring unit. Make sure the widest channel on the connector lines up with the indicator mark on the rubber grommet on the side of the unit. **Do not force the connector; when correctly aligned the connector will slip in the first 1/16" (1 mm), then apply 2-3 lbs force (9-13 Newtons) in-line with the connector to fully insert each waterproof connector into the unit.**
- 5) Similarly, connect the Relative Humidity & Temperature sensor cable.

**NOTE 5:** At the end of the installation, ensure all unused/open connectors on the monitor are covered/recovered with a protective end cap or protective tape.

**WARNING 1:** If using external power, to avoid damage to the AN110 electronics, **the external voltage supply must not exceed 30 VDC**. The minimum external voltage is 5 VDC, but should this voltage drop below 5 V the AN110 will automatically switch to its internal battery while the external voltage remains low.

**WARNING 2:** **To avoid breakage**, before attempting to connect the external power cable to the AN110, first make sure any surrounding components have been removed (the Antenna, the Relative Humidity & Temperature cable, the RS-485 cable, and the RS-232 cable). This allows easy, direct access to the AN110's external power connector. Notice that the external power cable's connector has a spring-assisted sleeve/lock that can be moved rearward. To ensure proper connection without mechanical damage to either power connector (the one on the cable and the one on the AN110), gently insert then rotate the cable's connector into the AN110 until the cable's connector slips in 1/8" (3 mm). Now, while holding the cable connector in place, **pull the cable connector's sleeve fully rearward**. You can then fully press that connector into the AN110 before releasing the sleeve, which will move forward locking the cable into the AN110. To test the mechanical connection, gently pull back on the cable to see if it remains locked in the AN110. If it disconnects, connector locking was not accomplished, so start the above process again. When a locked connection is attained, replace those surrounding components previously removed. When removal of an external power cable is desired, simply remove surrounding components, hold the now accessible power cable's connector in place, fully pull back its locking sleeve, and gently remove the cable from the AN110.