

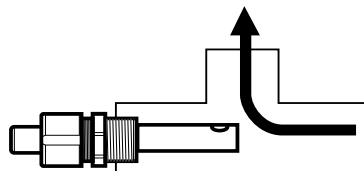
# Technical Reference Section: Conductivity/Resistivity

## Installation and Application Tips

The two basic installation configurations for conductivity electrodes are in-line and submersible. In-line configuration refers to installation into a piping system as opposed to submersion in a tank. In either case the primary considerations are to minimize the propensity for air entrapment inside and/or around the electrode and to position the electrode for representative exposure to the process.

- **In-Line Installation**

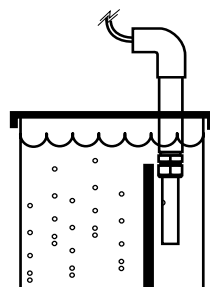
For in-line configurations it is best to install the electrode in the “dead leg” of a tee fitting. That is, use a tee fitting in place of an elbow and install the electrode in the horizontal plane. Best results will be obtained if fluid flows into and around, then up and away from the electrode. Be sure that at least one of the holes in a flow-through electrode is facing upward to allow air bubbles to escape.



*Upward flow is the preferred installation when mounting the sensor in a tee*

- **Submersible Installation**

When conductivity electrodes are submerged in tanks beware of mechanical mixers, spargers, and inlets as potential sources of air bubbles. Baffles may be used to create more favorable conditions for reliable continuous conductivity measurements. If the application is such that sediment is likely to accumulate on the bottom of the tank, then position the electrode to avoid it being smothered by debris.



*Mounting a submersed sensor on the side of the baffle that is free of air bubbles is preferred*

Most +GF+ SIGNET conductivity electrodes are supplied with a standard 4.6 m (15 ft.) of cable. Generally, this can be extended up to a maximum of 30 m (100 ft.). If splicing in the field, then use good quality 3-conductor shielded 22 AWG cable and be sure to maintain the shield through the splice. Electrode cable should be routed separately from power wiring. The maximum allowable cable length for resistivity measurements above 10 M $\Omega$  (below 0.1  $\mu$ S) is 7.6 m (25 ft.), except for the model 2850 Conductivity Sensor which allows cable lengths of almost 91.5 m (3,000 ft.) for all measurements.

The primary purpose of calibration is to compensate the system for possible changes occurring to the electrode's cell constant. Since the cell constant accuracy of all +GF+ SIGNET conductivity electrodes is tightly controlled, and since brand new electrodes should be allowed to “soak” overnight prior to calibration, “out-of-the-box” calibration of conductivity systems is not recommended.