Pyxis®

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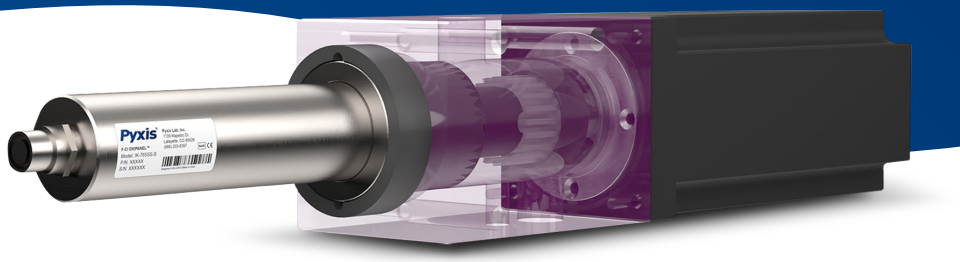
Defining **Clean vs. Dirty** Water for Proper Installation of the **ST-765 Series**



USER GUIDE

To ensure optimal performance and longevity of the Pyxis ST-765 bare-gold electrode oxidizer sensor, it is recommended that the process water meet the following clean water quality guidelines:

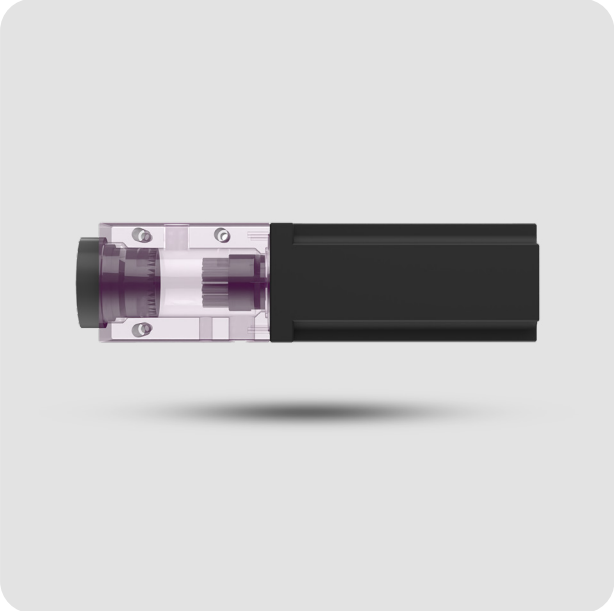
Parameter	***Guidelines***
Langelier Saturation Index (LSI)	<0.2 for Untreated Water, <1.0 for Treated Water (i.e. Deposit Control Dispersants)
Turbidity	<2.0NTU
Total Iron	<0.2ppm
Manganese	<0.05ppm
Free Chlorine	<5.0ppm

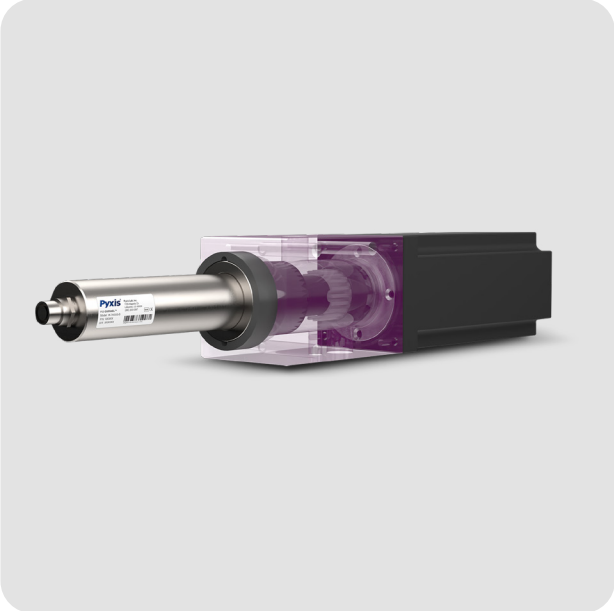
Water within these parameters is considered “clean” by Pyxis Lab standards and is suitable for use with the FR-50, FR-100, FR-200 flow reservoirs and ST-001, ST-007, ST-009 flow tee assemblies when paired with the ST-765 sensor series.

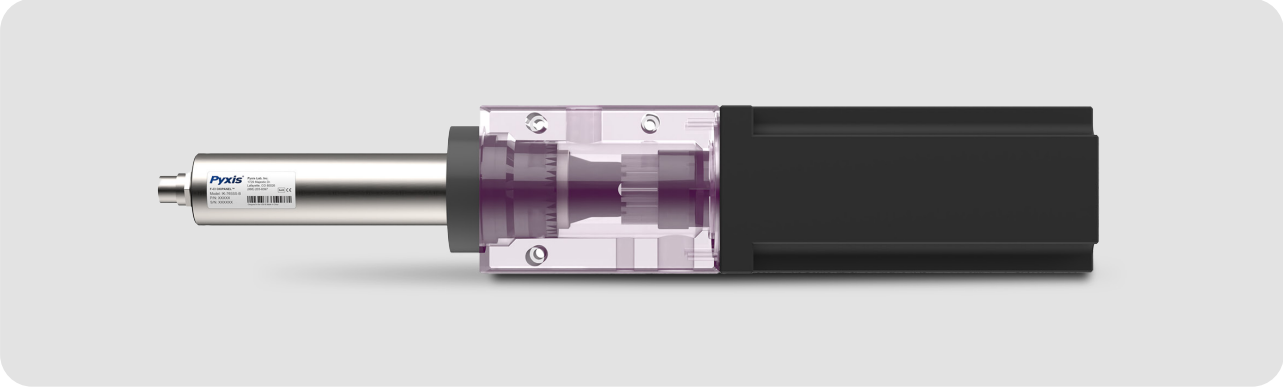
The **Langelier Saturation Index (LSI)** is a calculated value that estimates the scaling potential of water—specifically its tendency to deposit calcium carbonate scale on surfaces. It is determined using a combination of factors including **pH, temperature, total dissolved solids (TDS), calcium hardness,** and **alkalinity**. An LSI value below 1.0 indicates undersaturated or balanced water, which reduces the risk of scale formation on the sensor’s electrode surface. Values above this threshold suggest oversaturation, increasing the likelihood of calcium carbonate deposits that can impair electrode performance.

When water quality exceeds any of the listed thresholds, the risk of **fouling on the bare gold electrode** significantly increases. Iron and manganese can oxidize and precipitate onto the electrode, while turbidity introduces suspended solids that may accumulate on the sensing surface. A high LSI can cause mineral scaling, all of which interferes with the sensor's ability to accurately detect and respond to oxidizer concentrations such as free chlorine. These fouling effects lead to a **reduction in sensor sensitivity**, response time, and overall measurement accuracy.

In such challenged water conditions, Pyxis Lab recommends use of the **FR-300-PLUS or FR-306-PLUS auto-brushing flow reservoirs**. These advanced reservoirs incorporate a **mechanical brushing mechanism** that periodically cleans the electrode surface. This action helps to remove fouling layers—be they mineral, particulate, or biological—thus maintaining **optimal electrode cleanliness and sensitivity**.







If you are unsure whether your water quality meets the clean water guidelines or which flow reservoir is most appropriate for your application, please contact **Pyxis Lab technical support**. Our team is available to assist in evaluating site conditions and **recommending the best installation method** for the ST-765 sensor series to ensure long-term accuracy and performance.

CONTACT US.

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