

# ST-710SS Series

## Inline pH & ORP Smart Sensors with Replaceable Head

### Product Description

The Pyxis ST-710SS series of pH and pH/ORP composite sensors are specifically designed to simplify installation, calibration and in-use operation in process water, industrial water, wastewater and cooling water applications. These sensors are uniquely designed to offer an embedded transmitter and can be utilized in both 4-20mA or RS-485 Modbus formats. When utilized in RS-485 Modbus format, these sensors also provide a temperature output signal. These features dramatically improve application possibilities allowing the ST-710SS series of sensors to be directly connected to any micro-processor- based controller, PLC and Distributed Control System.

The ST-710SS series oversized platinum disk for ORP and the flat pH bubble sensing elements increase their resistance to highly turbid waters and contamination. The enlarged salt bridge design with large junction capacity also ensures a significantly longer sensor life with minimal maintenance.

These devices are ideally suited for hard to measure waters where conventional pH & ORP sensors would have otherwise failed or required high maintenance costs. The ST-710SS series of sensors are produced with a 304 Stainless Steel Body and are designed with a removable and replaceable electrode head assembly. Each sensor offers a unique design Electrode Head Assembly incorporating the complete sensor electrode and appropriate electrolyte solution in an easily replaceable format. Each sensor offers a six-foot cable with 8-Pin quick adapter as well as a 1.5-foot flying lead wire with 8-pin adapter for rapid installation and replacement. The ST-710SS series are provided with the ST-001 Pyxis standard  $\frac{3}{4}$ " NPT-CPVC installation Tee for in-line flow applications but may also be installed in submersed applications using the MA-102S Submersion Adapter Kit. Additionally, larger pipe size installation Tee's are available from Pyxis Lab.



*Figure 1 - ST-710SS Series  
pH and ORP Sensors  
w/ Replaceable Electrode Head*

### Installation / Applications

- Industrial Process & Cooling Water
- Fresh / Brackish / Sea Water
- Raw / Influent Water
- Wastewater Effluent
- Surface Water / Storm Water

### Features

- Easy and replaceable electrode head with simple replacement
- Accurate and stable measurement with ultra-low drift
- Built-in transmitter without preamplifier or meter head
- Dual Outputs both 4-20mA isolated signals or RS-485 Modbus
- Long-distance transmission with higher stability & accuracy
- Wireless Calibration, Diagnostics, Data Trend via uPyxis APP when used with MA-CR Adapter
- Tolerant to frozen conditions during shipment or storage for short periods
- Large junction capacity
- 3-4X Electrolyte Solution Content
- Enlarge Platinum Disk
- Longer service life

### Specifications

Items	ST-710SS	ST-711SS	ST-712SS
P/N	53030	53031	53032
ORP Range	NA	± 1500 mV	± 1500 mV
Precision	NA	± 1 mV or 1% of the value	± 1 mV or 1% of the value
pH Range	0.00 – 14.00 w/ATC	NA	0.00 - 14.00 w/ATC
Precision	± 0.01 pH unit or 1% of the value	NA	± 0.01 pH unit or 1% of the value
Response Time	95% within 5 seconds		
Power Supply	22 – 26V DC, Power Consumption 2W		
Storage Temperature	-7 °C – 60 °C (20 – 140 °F)		
Outputs	Isolated 4 – 20 mA Analog Outputs & Isolated RS-485 Digital Output		
Dimension (L x D)	Length 6.8 inch (172.7 mm), body diameter 1.44 Inch (36.6 mm)		
Installation	ST-001 Inline Tee (provided) ¾" FNPT Glue & Thread		
Body Material	304 stainless steel		
Weight	530 g (1.16 lbs)		
Operational Pressure	100 psi (6.9 Bar)		
Operating Temperature	4 °C – 49 °C (40 – 120 °F)		
Wet Material	Quartz & UPVC		
Rating	IP67, Fully Dustproof & Waterproof		
Regulation	CE Marked		
Cable Length	MA-4.9CR Cable (8Pin Male/Female Adapters – 4.9ft) MA-1.5CR Cable (8 Pin Male Adapter/Flying Leads –4.9ft) <i>Additional Extension Cables Available</i>		
Typical Electrode Service Life	2 years		
Electrode Warranty	6 Months		
Sensor Body Warranty	13 Months		

### Optional Accessories and Replacement Electrode Heads

The ST-710SS Series each offer easily replaceable electrode heads for continued sensor use and years or service. Listed below are the optional accessories available for use with the ST-710SS Series of sensors, including the Electrode Head Replacement units.

Accessory Name/Description	Part Number
EH-710 <i>(Replacement pH Electrode Head for ST-710SS)</i>	53033
EH-711 <i>(Replacement ORP Electrode Head for ST-711SS)</i>	53034
EH-712 <i>(Replacement pH + ORP Electrode Head for ST-712SS)</i>	53035
ST-001 <i>(Inline CPVC Tee Assembly – Included with each sensor)</i>	50704
ST-007 <i>(Stainless Steel Inline Tee Assembly ¼-inch OD Swagelok Compression)</i>	50700-A51
MA-CR <i>(Bluetooth Adapter For use with Pyxis 8-Pin Sensors)</i>	MA-CR
MA-NEB <i>(USB Bluetooth Adapter for use with Laptop or Desktop)</i>	MA-NEB
MA-50CR <i>(8-Pin Extension Cable-50 feet)</i>	50743
PowerPACK-2 <i>(Dual Channel Powered Bluetooth Adapter w 2x 4-20mA Pass Through)</i>	MA-BLE-2
ORP-200mV Calibration Standard Solution <i>(Calibration Solution 500mL)</i>	57020
4-7-10 Combination pH Calibration Kit <i>(4-7-10 pH Calibration Solution 500mL Each)</i>	57007



**EH-710**  
*Replacement pH Electrode*



**EH-711**  
*Replacement ORP Electrode*



**EH-712**  
*Replacement pH + ORP Electrode*

**Removal and Replacement of EH-71X Electrode Head**

1. Turn off the sensor if it is powered on.
2. Make sure there is no water on the sensor.
3. Hold the ST-710SS Series main body with one hand and use the other hand to twist the stainless-steel locking ring connecting the black electrode counterclockwise, until the front end of the black electrode is completely unscrewed, as shown in Figure 2.
4. Pull out the electrode head as show in Figure 3.
5. Gently loosen the electrode plug connector and remove the electrode head as show in Figure 4.
6. To assemble the new electrode head, gently insert the plug connector and push the wires into the main housing. Gently insert the new electrode head into the sensor main body. The two protrusions on the electrode head should be aligned with the notch in the sensor main housing.
7. Then twist the stainless-steel lock ring of ST-710SS Series in a clockwise direction until the threads of the electrode head basically enter the ST-710SS Series housing, as shown in 1.

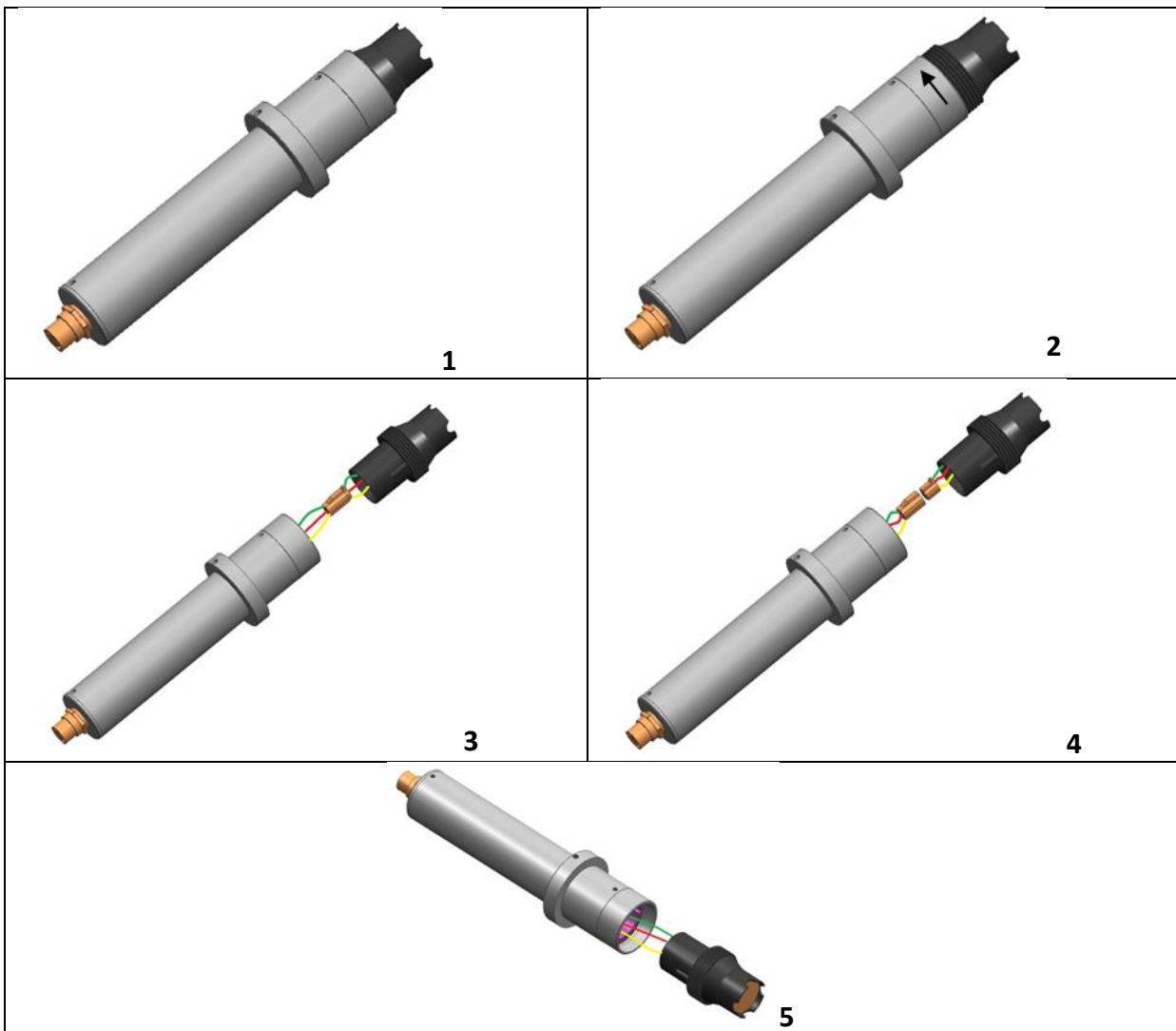


Figure 2 Replacing EH-71X - Electrode Head

### Cleaning & Calibration

The ST-710SS Series sensors are uniquely designed and highly stable. Simple maintenance cleaning and calibration of the sensors on a regular basis should enable very long operational life and accuracy. Cleaning and calibration frequencies are application dependent on the contaminant level of suspended solids, iron, manganese, oil, and bacteria, etc... When calibration is required, the ST-710SS Series can be wirelessly diagnosed, cleaned and calibrated using the **MA-CR** or **PowerPACK** Series Bluetooth adapters and the **uPyxis** APP for Mobile or Desktop.

See instructional video attached. [https://www.youtube.com/watch?v=nzlwOH2\\_o](https://www.youtube.com/watch?v=nzlwOH2_o)



Figure 3 – MA-CR Bluetooth Adapter (left) / uPyxis Mobile APP (center) / Pyxis Calibration Standards & Probe Cleaner (right)