

STs Series Dissolved Oxygen



Thank you for purchasing the pHionics STs Series™ Dissolved Oxygen (DO) sensor. By following these instructions, you will receive many years of reliable service. This quick start guide explains the basics of setup and caring for your sensor. For questions or detailed explanations, please see [our manual](#) or contact us at support@phionics.com.

Out-of-the-Box Setup

- [Click here to watch our 4-minute video covering initial unboxing and setup.](#)
- Save the vinyl caps to store the sensor.
- If you find damage or have any questions/concerns, please reach out to support@phionics.com.

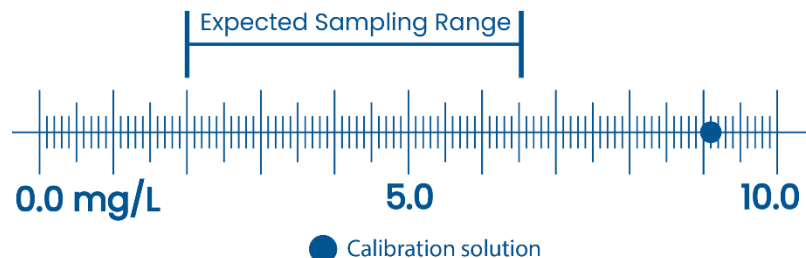


Recommendations for Use

- Handle with care and avoid touching the electrode tip.
- Always keep guard on during use to protect from damage.
- At least part of the metal housing must be in contact with the solution for stable measurements.
- Fully submerge the sensor for most accurate temperature output and automatic temperature compensation.
- Install the shield wire for highest accuracy.

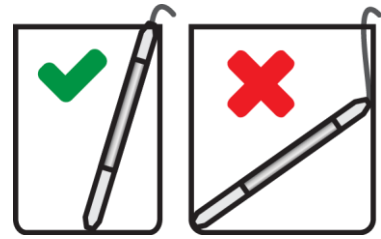
Calibration

The temperature sensor does not require calibration. Simply use 4 mA for 0°C (32°F) and 20 mA for 50°C (122°F) when scaling the output. Follow the instructions below to calibrate the dissolved oxygen sensor.



1. Connect the red and black wires to either a receiver, or in series with an ammeter and 8-40V power supply. The wires are reversible so either can supply power or output the signal.
2. Remove the protective boot from the end of the sensor and rinse the pHionics STs device off with deionized water.

- Carefully dry the electrode tip with soft tissue paper or similar. The electrode tip has a fragile membrane that can be torn.
- Place the sensor upright in a container and let sit for 15-20 minutes while the sensor equalizes the internal temperature with the room. The sensor should be no more than 45° from straight upright.
- Record the mA output of the sensor then calculate the oxygen concentration using the room temperature and elevation either with an online calculator or the blue table above (e.g. The sensor is calibrated in a 20°C room at sea level. The oxygen concentration is 9.1 mg/L).
- Use the mA output and calculated oxygen concentration to scale the datalogger, PLC, or RTU.
- If problems occur, please contact us at support@phionics.com



Maintenance

- Calibration is generally not required for months at a time but the sensor may become inaccurate due to debris build-up.
- For general cleaning, soak the electrode in 0.1M HCl for up to 20 minutes. Only clean the electrode by chemical means. The electrode tip is tough but can still tear if brushed or rubbed. Please see [our cleaning guide](#) for more information and cleaning options.



Troubleshooting

- Please do not take apart the sensor without first contacting customer support or [watching our troubleshooting video](#). Fragile components can be damaged if proper precautions are not taken.
- If disassembly of the sensor is recommended for your problem, always dry off the sensor beforehand and reapply grease to any O-rings exposed during the process.
- All parts are easily replaceable. If damage occurs, please reach out to sales@phionics.com.

Storage

- Dry the sensor off and unscrew electrode body a full turn to disengage the electrode. If not disengaged, then the electrode continues to react with oxygen and is depleted.
- Place the vinyl cap over the electrode to prevent moisture from entering.
- Store in a cool, dry place until needed again.

100% Dissolved Oxygen Concentration at Different Temperatures and Elevations

TEMP	Elevation (Feet above sea level)						
°C	0	1000	2000	3000	4000	5000	6000
0	14.6 mg/L	14.1	13.6	13.2	12.7	12.3	11.8
2	13.8	13.3	12.9	12.4	12.0	11.6	11.2
4	13.1	12.7	12.2	11.9	11.4	11.0	10.6
6	12.4	12.0	11.6	11.2	10.8	10.4	10.1
8	11.8	11.4	11.0	10.6	10.3	9.9	9.6
10	11.3	10.9	10.5	10.2	9.8	9.5	9.2
12	10.8	10.4	10.1	9.7	9.4	9.1	8.8
14	10.3	9.9	9.6	9.3	9.0	8.7	8.3
16	9.9	9.7	9.2	8.9	8.6	8.3	8.0
18	9.5	9.2	8.7	8.6	8.3	8.0	7.7
20	9.1	8.8	8.5	8.2	7.9	7.7	7.4
22	8.7	8.4	8.1	7.8	7.7	7.3	7.1
24	8.4	8.1	7.8	7.6	7.3	7.1	6.8
26	8.1	7.8	7.6	7.3	7.0	6.8	6.6
28	7.8	7.5	7.3	7.0	6.8	6.6	6.3
30	7.5	7.2	7.0	6.8	6.5	6.3	6.1 mg/L

Thank you for choosing pHionics. Please reach out to our customer support if you have any questions or feedback. We are always happy to help or hear recommendations for how we can provide an even better customer experience.

Contact information:

support@phionics.com; +1 (775) 339-0565

Monday – Friday 9 AM – 5 PM PST