

# ST-772 Series

## Luminescent Dissolved Oxygen Sensor

### Product Description

The Pyxis ST-772 Series optical luminescent dissolved oxygen (DO) sensor is based on the principle of 'fluorescence quenching' to determine the dissolved oxygen content in water. It incorporates Pyxis' advanced technology in the field of fluorescence detection and uses dual Blue/Red light detection technology with excitation and reference light sources, offering a wide detection range and very low detection limit. The sensor also integrates temperature and pressure sensors, which can perform temperature and pressure compensation for the measurement of dissolved oxygen based on ambient environmental conditions present in the application of use. The ST-772 offers an easily replaceable, front loading DO membrane cap that has been independently developed by Pyxis Lab, with a typical service life of up to two years. This unique DO membrane cap design incorporates a black microporous PTFE membrane material designed to provide extreme scratch resistance, extended life span and simple replacement. The flat front-end design of the ST-772 makes this platform less prone to contamination or fouling and is very easy to clean. The sensor body is composed of 304 stainless steel or CPVC and is well suited for aggressive industrial application use. The ST-772 (304SS) and ST-772P (CPVC) models should be utilized in a submersed fixed or floating application with the Pyxis submersion assembly options. The ST-772T (304SS) and ST-772T-P (CPVC) models are offered for inline or bypass flow installations. The ST-772 series offers both 4-20mA and RS-485 Modbus outputs and is Bluetooth enabled when used in conjunction with the MA-CR Bluetooth Adapter.

### Product Features

- 0.004-20mg/L measurement range
- No Membrane Replacement or Electrolyte Replacement
- Simple DO Cartridge Replacement every 2 years
- Built-in temperature and pressure sensor with automatic compensation
- Accurate and stable measurement with ultra-low drift requiring no calibration for up to 2-years
- Built-in transmitter without preamplifier or meter head
- Dual Outputs both 4-20mA isolated signal and RS-485 Modbus
- Wireless Calibration, Diagnostics, Data Trend via uPyxis APP when used with MA-CR Bluetooth Adapter
- Slope calibrate with air or air saturated water / Zero calibrate with 5% Sulfite solution or Nitrogen Gas
- Submersible (ST-772 or ST-772P) or Inline Pipe Tee (ST-772T or ST-772T-P) installation versions available



ST-772 DO Sensor



ST-772T DO Sensor

## Typical Applications

- Activated Sludge / Aeration Basin / Nutrient Removal
- Wastewater / Sewage Processing
- Chemical / Process Water Applications
- Domestic / Drinking Water Applications
- Filtration Applications
- Aquaculture
- Agriculture
- Compliant USEPA 40CFR Part 136.3 as an approved method for measurement of dissolved oxygen in wastewater, drinking water and direct discharge.

## Specifications

Item	ST-772	ST-772-P	ST-772T	ST-772T-P
P/N	53703	53720	53719	53721
Body Material	304SS	CPVC	304SS	CPVC
Installation Method	Submerged Installation		ByPass / Inline Installation	
DO Measuring Range (4-20mA Output Scale)	0.004-20mg/L or 0-200% Saturation or 0-500mbarP02			
Temp Measuring Range (4-20mA Output Scale)	32 – 122°F (0 – 50°C) ± 0.2% of value			
Resolution	0.01mg/L			
Accuracy	± 0.1mg / L or ± 1%, whichever is greater			
Light Source	Blue Light Irradiated Emission Red Light Quenching Excitation			
Response Time	<60 Seconds			
Operational Temperature	0 °C – 45 °C (32 - 113° F)			
Operating Voltage	22 – 26V DC, Power 0.6W			
Signal Output	2x 4-20mA analog output / RS-485 digital output			
Dimension (L x D)	296 x33.6 mm (11.65x 1.32 inches)			
Weight	760 g (1.67 lb) cable excluded			
Working Pressure	145 psi			
Wet Material	304SS/Polycarb	CPVC/Titanium	304SS/Polycarb	CPVC/Titanium
Cables Provided	4.9ft/1.5m Flying Lead Cable – 8Pin 30ft/10m Bulkhead Cable – 8Pin		4.9ft/1.5m Flying Lead Cable – 8Pin 4.9ft/1.5m Bulkhead Cable – 8Pin	
Calibration	Slope calibration Air or Air Saturated Water Zero calibration: 5% Sodium Sulfite or Nitrogen Gas			
DO Membrane Cap Life	2 years			
Protection Grade	IP-67/IP-68			
Regulation	CE / RoHS			
Compliance	USEPA 40CFR Part 136.3			

*\*NOTE\* Pyxis is constantly updating product technology as such specifications may be altered at any time.*

### ST-772 / ST-772-P Standard Accessories (For Submersed Installations)

The following accessories are included in the ST-772 and ST-772-P probe for submersed installations

- One **ST-772** (304SS) or **ST-772-P** (CPVC) Dissolved Oxygen Probe with 30ft/10m Bulkhead Cable
- One **DCC-1** Membrane Cap for ST-772 (P/N – 53712)
- One **MA-1.5CR** Cable (1.5 Meter/ 4.9 ft 8Pin Female Adapter/Flying Lead)
- One **MA-CR** Bluetooth Adapter for 8Pin Sensors
- One **MA-NEB** Bluetooth/USB Adapter for use with Desktop uPyxis APP
- The full instrument manual is available for download at [www.pyxis-lab.com/support.html](http://www.pyxis-lab.com/support.html)

### ST-772T / ST-772T-P Standard Accessories (For ByPass Flow Installations)

The following accessories are included in the ST-772T and ST-772T-P probe for bypass flow installations

- One **ST-772T** (304SS) or **ST-772T-P** (CPVC) Dissolved Oxygen Probe with 4.9ft/1.5m Bulkhead Cable
- One **ST-001** Inline Tee Assembly (P/N – ST-001)
- One **DCC-1** Membrane Cap for ST-772 (P/N – 53712)
- One **MA-1.5CR** Cable (1.5 Meter/ 4.9 ft 8Pin Female Adapter/Flying Lead)
- One **MA-CR** Bluetooth Adapter for 8Pin Sensors
- One **MA-NEB** Bluetooth/USB Adapter for use with Desktop uPyxis APP
- The full instrument manual is available for download at [www.pyxis-lab.com/support.html](http://www.pyxis-lab.com/support.html)



Figure 1

ST-772 / ST-772T / ST-772T-P DO Sensors / DCC-1 Membrane Cap / MA-CR Bluetooth Adapter / MA-NEB USB Adapter

## ST-772 Series Optional & Replacement Accessories

Optional / Replacement Accessories	P/N
MA-CR Bluetooth Adapter for 8-Pin Pyxis Sensors	MA-CR
MA-150-1 Floating Submersion Adapter Kit <i>For ST-772 (304SS and ST-772-P (CPVC))</i>	53705
MA-120-B Fixed Submersion Adapter Kit <i>For ST-772 (304SS) and ST-772-P (CPVC)</i>	50783
ST-001 Inline Tee Assembly (¾" FNPT) <i>For ST-772T (304SS) and ST-772T-P (CPVC)</i>	50704
DCC-1 Dissolved Oxygen Membrane Cap - Replacement	53712
MA-50CR (50' Extension Cable w/8Pin Adapters)	50743
MA-100CR (100' Extension Cable w/8Pin Adapters)	50744

## ST-772T and ST-772T-P Inline/ByPass Flow Installation Option

**Pipeline Installation** The ST-772T (304SS) and ST-772T-P (CPVC) may be installed in a pressurized inline flow application as high as 145 psi (10Bar) using the provided Pyxis ST-001 Inline Tee Assembly. The ST-001 offers ¾" FNPT Thread or Socket Weld Adapters with Unions for easy installation and sensor maintenance. Pyxis recommends installation in a vertical flow format from bottom up to reduce the impact of water bubbles. Install O-ring on the sensor and then install the sensor into the tee and ensure the DCC-1 membrane cap is in the direction of water flow as shown in Figure 2.

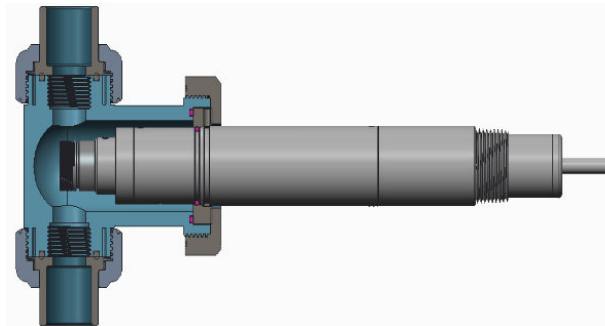
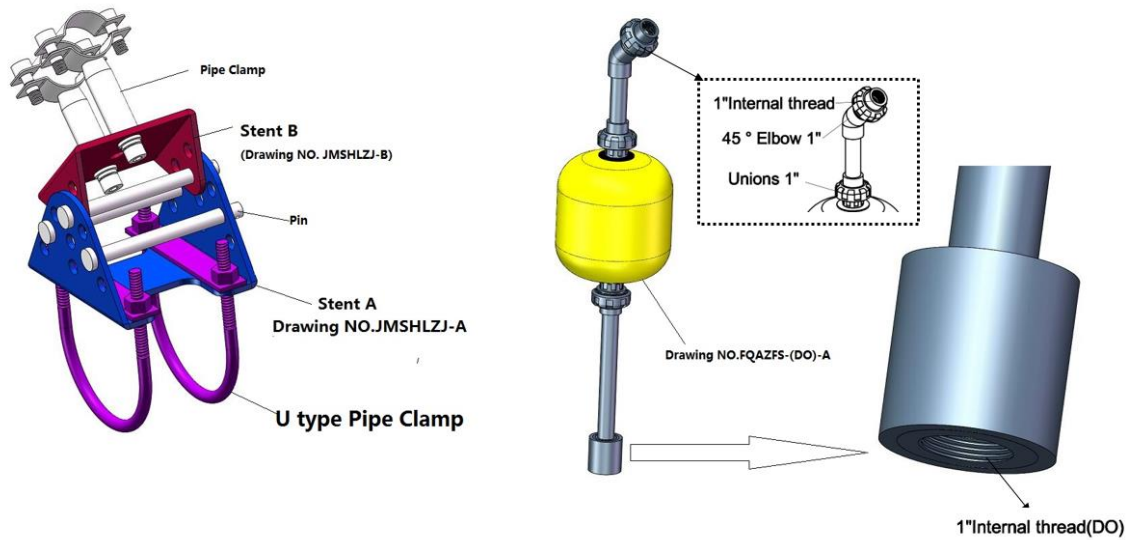


Figure 2 ST-772T / ST-772-P in a pipeline installation using ST-001 inline Tee Assembly

**ST-772 and ST-772-P Submersed Floating Installation**

**MA-150-1 Submersed Floating Installation:** The ST-772 (304SS) and ST-772-P (CPVC) may be installed in a submersed/floating application using the MA-150-1 Submersed Floating Adapter Kit. This kit contains a swiveling conduit mounting bracket and ball float-probe adapter assembly in 1" FNPT. The ST-772 and ST-772-P dissolved oxygen sensors need to be installed as shown in Figure 3. For installation, users only need to purchase the MA-150-1 from Pyxis Lab and may obtain water-tight conduit and cable seal adapter from their supplier of choice. For sensor replacement and maintenance, users only need to pull the MA-150-1 and DO sensor from fixing bracket vertically (upward).

MA-150-1



The stainless steel pipe needs to be purchased by the user.

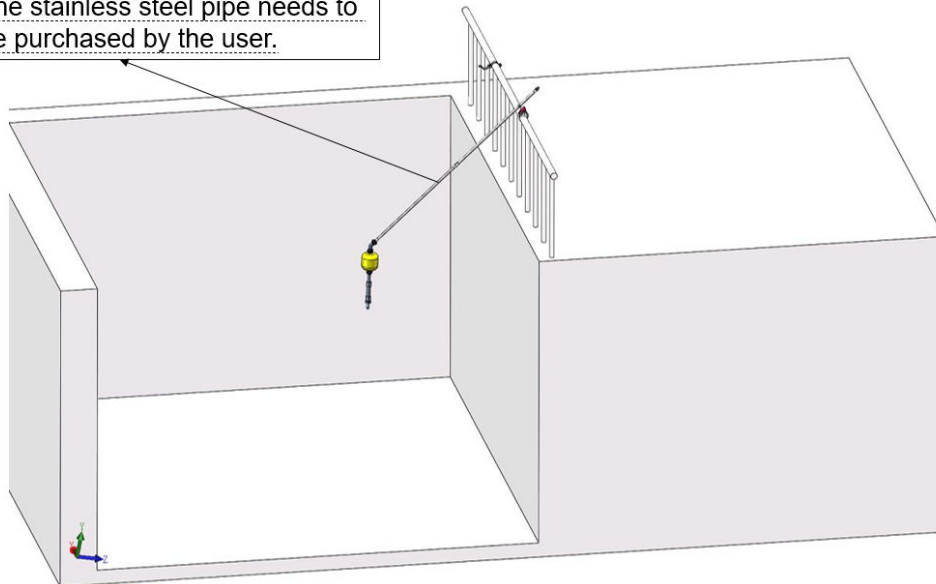


Figure 3 ST-772 / ST-772-P in a submersed floating installation

**ST-772 and ST-772-P Submersed Fixed Installation**

**MA-120-B Submersed Fixed Installation:** The ST-772(304SS) and ST-772-P (CPVC) may be installed in a submersed/fixed application using the MA-120-B Submersion Adapter Mounting Bracket and probe adapter coupler in 1" FNPT. The ST-772 and ST-772-P dissolved oxygen sensors need to be installed as shown in Figure 4. For installation, users only need to purchase the MA-120-B from Pyxis Lab and may obtain water-tight conduit and cable seal adapter from their supplier of choice. For sensor replacement and maintenance, users only need to pull the MA-120-B and DO sensor from fixing bracket vertically (upwards).

MA-120-B

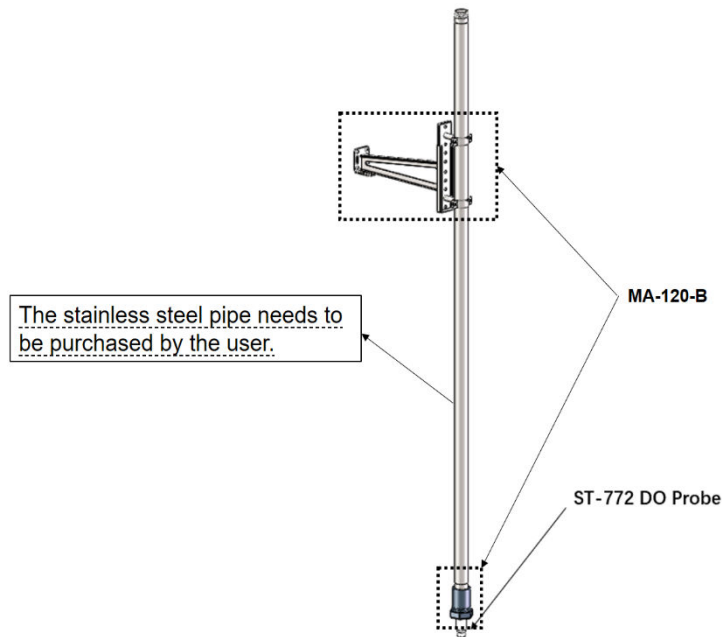
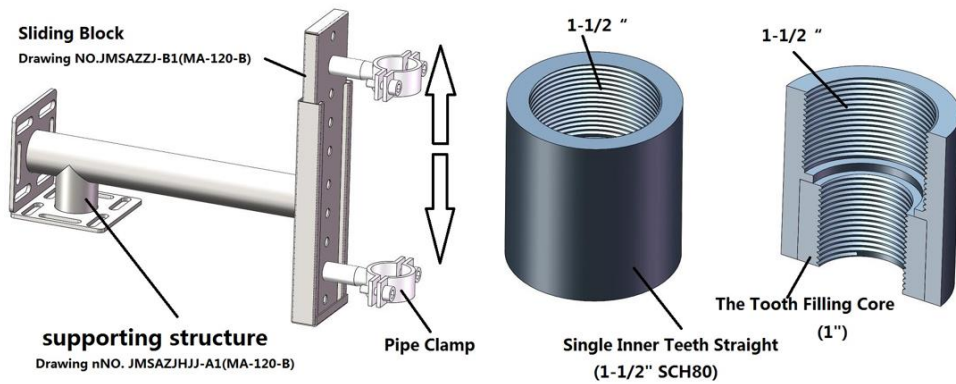


Figure 4 ST-772 / ST-772-P in a submersed fixed installation



### ST-772 Series Wireless Calibration via uPyxis APP

The uPyxis APP manages all Pyxis portable meter and inline sensors on mobile and desktop devices, including Apple iPhones and Samsung Android smartphones. When connected to the Pyxis ST-772 Series Dissolved Oxygen sensor, the uPyxis APP enables users to diagnose, clean and calibrate the sensor at both zero and slope points, preventing the need to calibrate the sensor through the receiving controller or PLC. **\*Note\*** The uPyxis Mobile APP is evolving rapidly and users can find the latest version at no cost on Apple iStore or Google Play. The uPyxis Desktop APP may be downloaded at <https://pyxis-lab.com/support-2/>



### Order Information

### P/N

ST-772 Submersed DO Sensor – 304SS (0.004-20.0 ppm 4-20mA & RS-485)	53703
ST-772-P Submersed DO Sensor - CPVC (0.004-20.0 ppm 4-20mA & RS-485)	53720
ST-772T Inline DO Sensor – 304SS (0.004-20.0 ppm 4-20mA & RS-485)	53719
ST-772T-P Inline DO Sensor - CPVC (0.004-20.0 ppm 4-20mA & RS-485)	53721

### Optional Accessories Information

MA-CR Bluetooth Adapter (8Pin Adapter Enables Wireless Calibration w/uPyxis APP)	MACR
MA-150-1 (Floating Submersion Adapter Kit)	53705
MA-120-B (Fixed Submersion Adapter Kit)	50783
DCC-1 Dissolved Oxygen Membrane Cap Replacement	53712
ST-001 (Inline Tee Assembly 3/4" NPT for ST Series Probes)	50704
UC-50 (Micro Display + Data Logger)	43007
UC-100S (Touch Screen Display + Data Logging Terminal Standard Unit)	43047
UC-100 Back Panel (UC-100 Premounted on Back Panel)	UC-100 Panel
MA-50CR (50 foot Extension Cable w 8Pin Quick Adapters)	50743
MA-100CR (100 foot Extension Cable w 8Pin Quick Adapters)	50744