

# ST-773

## Luminescent Dissolved Oxygen Sensor

### Product Description

The Pyxis ST-773 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 a temperature sensor for compensation of the measurement of dissolved oxygen based on environmental conditions. The ST-773 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-773 makes this platform less prone to contamination or fouling and is very easy to clean and brushable. The sensor body is composed of CPVC and is well suited for aggressive industrial application use. The ST-773 may be utilized in a submersed fixed/floating application or inline with the Pyxis submersion assembly and inline thread/tee accessory options. The ST-773 comes with a 10-meter bulkhead cable as well as 1.5-meter flying lead cable each with 7Pin quick adapters. The sensor output offers both 4-20mA and RS-485 Modbus communication which is Bluetooth enabled when used in conjunction with the MA-WB (7-Pin Bluetooth Adapter).

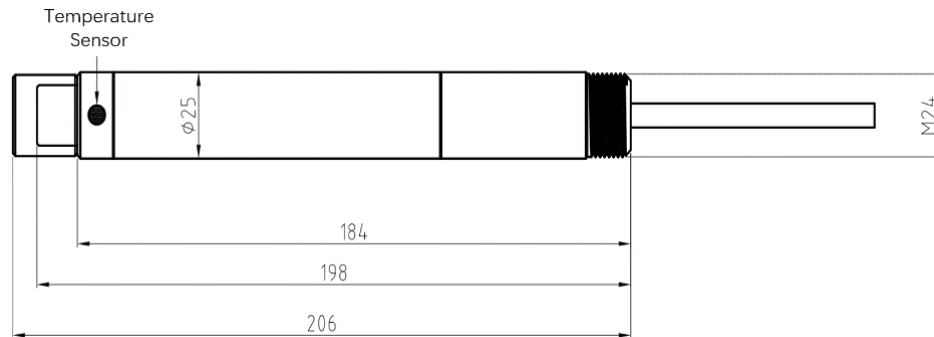


### Product Features

- 0.004-20mg/L measurement range - Stable Measurement - Ultra-Low Drift
- Simple PTFE film DO Cartridge Replacement
- Built-in temperature sensor with automatic compensation
- Built-in transmitter without preamplifier or meter head
- Dual Outputs both 4-20mA isolated signal and RS-485 Modbus
- CPVC Body - Lightweight and Corrosion Resistant
- Wireless Calibration, Diagnostics, Data Trend via uPyxis APP when used with MA-WB Bluetooth Adapter
- Submersible or Inline installations available using Pyxis Submersion or Inline Adapter Kits
- Meter Tail = ¾ inch NPT Outer Diameter Threading for Simple Installation

### Typical Applications and ST-773 Diagram

- Activated Sludge / Aeration Tanks / Nutrient Removal / Wastewater
- Chemical / Process Water / Domestic & Drinking Water
- Filtration / Aquaculture / Agriculture



### Specifications

Item	ST-773
P/N	53709
Body Material	CPVC
Installation Method	Submerged / Inline Installation
Measuring Range (4-20mA Output Scale)	0.004-20mg/L or 0-200% Saturation (Configurable via uPyxis APP)
Accuracy	± 0.3mg / L or ± 3%, 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	4-20mA analog output / RS-485 digital output
Dimension (L x D)	206 x 24.6 mm (8.11 x 0.97 inches)
Threading (Meter Tail)	¾ inch NPT
Weight	188 g (0.42 lb) cable excluded
Working Pressure	75 psi
Wet Material	CPVC and Polycarbonate
Cables Provided	1 x 4.9ft/1.5m Flying Lead Cable – 7Pin Female Adapter 1 x 30ft/15m Bulkhead Cable – 7Pin Male Adapter (Interconnecting Extension Cables Purchased Separately)
Calibration	Slope calibration Air or Air Saturated Water Zero calibration: 5% Sodium Sulfite or Nitrogen Gas
DO Membrane Cap Life	1.5 years
Protection Grade	IP-67
Regulation	CE / RoHS
Compliance	USEPA 40CFR Part 136.3 / ISO 17289:2014

### ST-773 Shipped with Standard Accessories (P/N 53709)

The following accessories are included in the ST-773 probe for submersed or inline installations. Please note submersion or inline adapters are purchased separately. Please see optional accessories for details.

- One **ST-773** Dissolved Oxygen Probe w 30ft/10m Bulkhead Cable (Male Adapter-7Pin)
- One **DCC-6** DO Membrane Cap for ST-773
- One **MA-1100** 1.5 Meter/ 4.9 ft Cable (Female Adapter/Flying Lead-7Pin)
- One **MA-WB** Bluetooth Adapter for 7Pin 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-773 / MA-1100 Flying Lead / MA-WB Bluetooth Adapter / MA-NEB USB Adapter / DCC-6 Membrane Cap

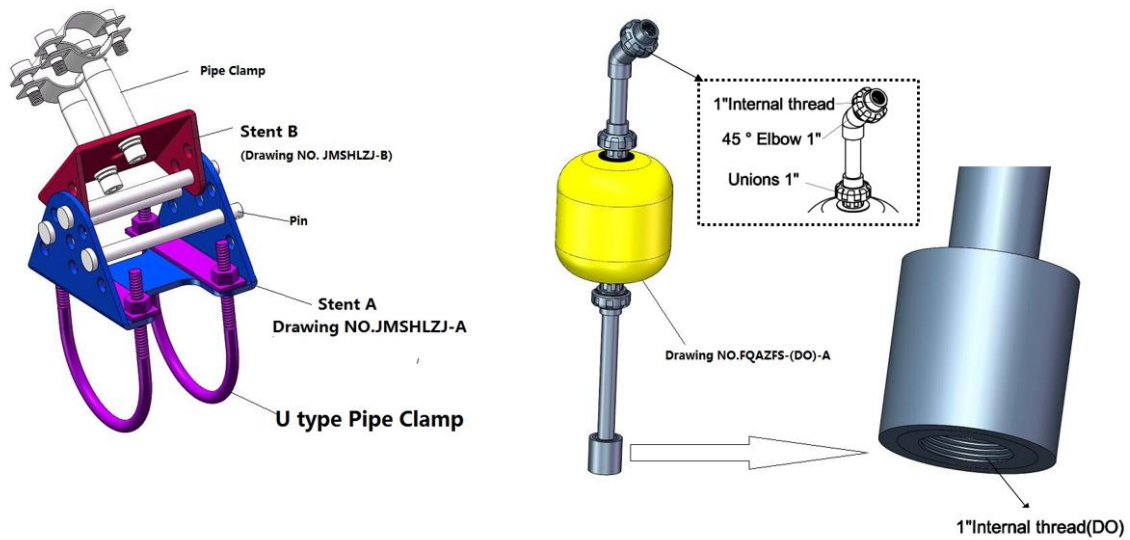
### ST-773 Series Optional & Replacement Accessories

Optional / Replacement Accessories	P/N
MA-WB Bluetooth Adapter for 7-Pin Pyxis Sensors	MA-WB
MA-150-1 Floating Submersion Adapter Kit	53705
MA-120-B Fixed Submersion Adapter Kit	50783
ST-773 Threaded Adapter for Inline Installation (1-inch NPT)	50700-A0
ST-001 Tee and Collar Assembly for Non-Threaded Inline Installation	53726
DCC-6 Dissolved Oxygen Membrane Cap - Replacement	53723
MA-C50 (50' Extension Cable w/7Pin Adapters)	50705
MA-C100 (100' Extension Cable w/7Pin Adapters)	50706

ST-773 Submersed Floating Installation

**MA-150-1 Submersed Floating Installation:** The ST-773 may be installed in a submersed/floating application using the MA-150-1 Submersed Floating Adapter Kit as shown in Figure 2. This kit contains a swiveling conduit mounting bracket and ball float-probe adapter assembly in 1" FNPT. 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.

MA-150-1



Customer Provided Conduit

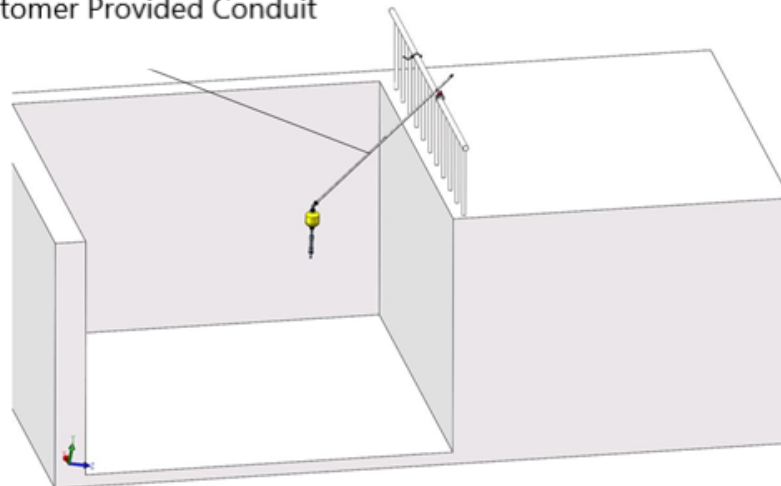


Figure 2 - ST-773 in a submersed floating installation using MA-150-1

ST-773 Submersed Fixed Installation

**MA-120-B Submersed Fixed Installation:** The ST-773 may be installed in a submersed/fixed application using the MA-120-B Submersion Adapter Mounting Bracket and probe adapter coupler in 1" FNPT as shown in Figure 3. 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

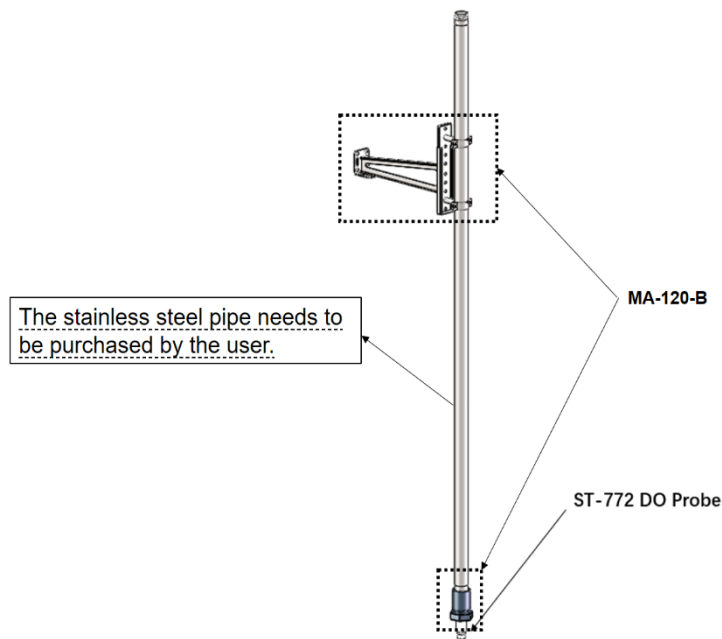
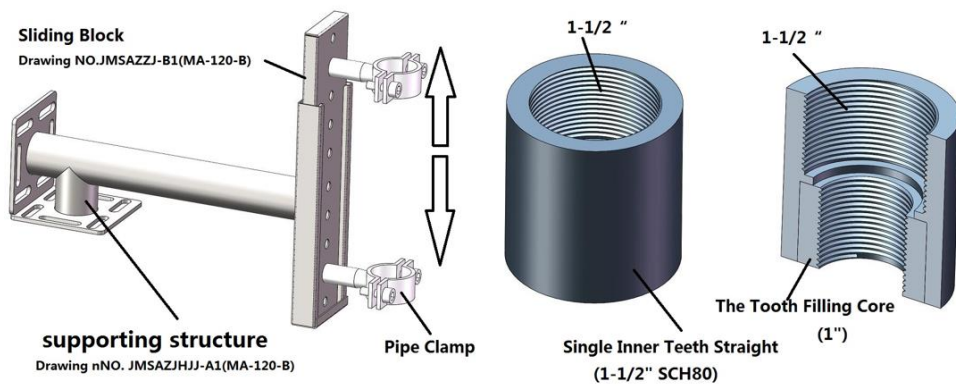


Figure 3 ST-773 in a submersed fixed installation using MA-120-B

### ST-773 Inline/Bypass Installation Options

**ST-773 Threaded Adapter Inline Installation:** The ST-773 may be installed in an inline bypass flow installation using the Threaded Adapter (P/N: 50700-A0) offered in one-inch MNPT. This 316L stainless-steel adapter mounts to the outer diameter of the ST-773 and enables threaded installation into any common one-inch FNPT threaded Tee. See diagram below.

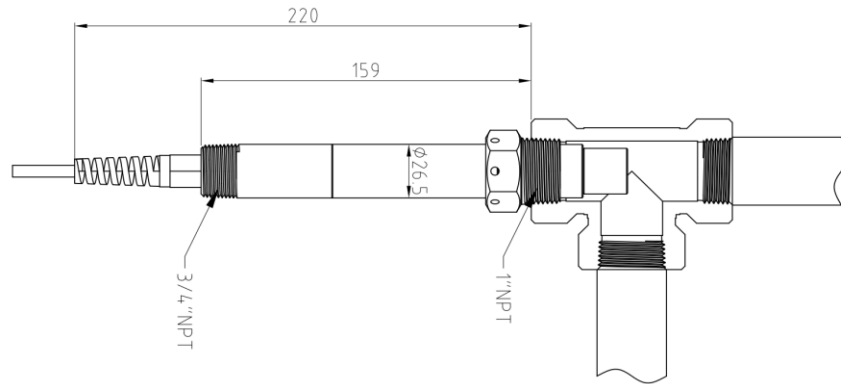


Figure 4 - ST-773 in the 1-inch Threaded Adapter Kit (P/N 50700-A04)

**ST-001 + Collar Kit for Non-Threaded Inline Installation:** The ST-773 may be installed in an inline bypass flow installation using the Pyxis ST-001 Inline Tee Assembly and Probe Collar (P/N: 53726) offered in 3/4 - inch FNPT. This provided sensor collar mounts to the outer diameter of the ST-773 and enables the probe to be installed via the ST-001 Inline Tee Assembly. See diagram below.

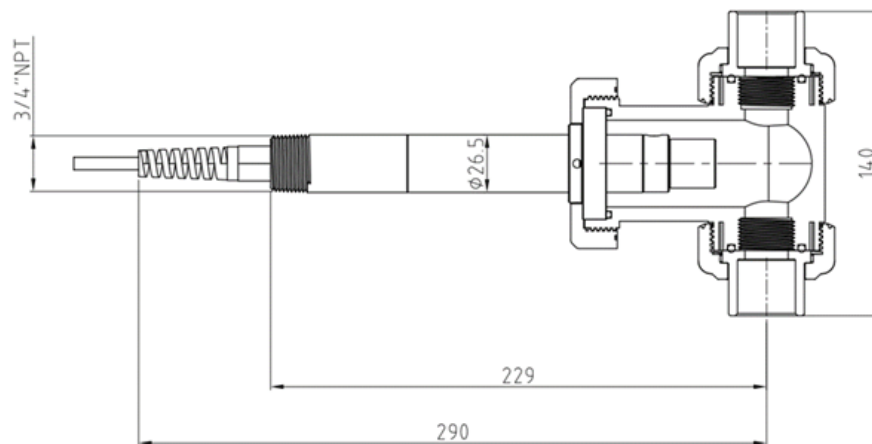


Figure 5 - ST-773 installed in the ST-001 Tee + Collar Assembly Kit (P/N 53726)

## ST-773 Wiring Guide

Follow the wiring table below to connect the ST-773 sensor to a controller.

Color	Designation
Red	24V+
Black	Power ground
White	4-20mA +
Green	4-20mA -
Blue	RS-485 A
Yellow	RS-485 B
Silver	GNDD

**\*NOTE\*** The 24V power ground and the 4-20 mA- return are internally connected.

If the 24V power ground and the 4-20 mA return in the controller are internally connected (non-isolated 4-20mA input), it is unnecessary to connect the 4-20 mA- (Grey wire) to the 4-20 mA negative terminal in the controller. If a separate DC power supplier other than that from the controller is used, make sure that the output from the power supply is rated for 22-26 VDC @ 65mA.

## ST-773 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 used with the MA-WB Bluetooth Adapter connected to the Pyxis ST-773 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://upyxis.pyxis-lab.com.cn/release/pc/uPyxis.Setup-latest.zip>

## Order Information

ST-773 DO Sensor CPVC w/Standard Accessories (0.004-20.0 ppm 4-20mA & RS-485)

P/N

53709

## Optional Accessories Information

MA-WB Bluetooth Adapter (7Pin Adapter Enables Wireless Calibration w/uPyxis APP)

MA-WB

MA-150-1 (Floating Submersion Adapter Kit)

53705

MA-120-B (Fixed Submersion Adapter Kit)

50783

ST-773 Threaded Adapter for Tee Inline Installation (1inch NPT)

50700-A04

ST-001 Tee + Collar Kit for ST-773 Non-Threaded Inline Installation (3/4- inch NPT)

53726

DCC-6 (DO Membrane Cap Replacement for ST-773)

50723

UC-50 (Micro Display + Data Logger)

43007

MA-C50 (50-foot Extension Cable w 7Pin Quick Adapters)

50705

MA-C100 (100-foot Extension Cable w 7Pin Quick Adapters)

50706