




Pyxis ST-565T HST or TTA Inline Sensors User Manual

[Home](#) » [Pyxis](#) » Pyxis ST-565T HST or TTA Inline Sensors User Manual 

Contents

- [1 Pyxis ST-565T HST or TTA Inline Sensors](#)
- [2 Installation](#)
- [3 Troubleshooting](#)
- [4 Documents / Resources](#)
- [5 Related Posts](#)

Pyxis

Pyxis ST-565T HST or TTA Inline Sensors



Optional Accessories

The following optional accessories can be ordered from Pyxis Customer Service (order@pyxis-lab.com) or Pyxis E-Store at <https://pyxis-lab.com/shop/>.

Pyxis PYXIS INLINE SENSOR ACCESSORIES - SELECT*A*GUIDE Pyxis		
Accessory Name/Description	Part Number	Photo
Pyxis ST Series Clearing Kit (Includes 500mL Sensor Cleaner / Q-tips & Pipe Cleaners)	SER-01	
HST-01 (1.0ppm HST Calibration Standard Solution - 500mL)	20131	
HST-02 (2.0ppm HST Calibration Standard Solution - 500mL)	20132	
TTA-01 (1.0ppm TTA Calibration Standard Solution - 500mL)	57015	
TTA-02 (2.0ppm TTA Calibration Standard Solution - 500mL)	57016	
0.75" NPT Inline Sensor Tee Assembly (All ST Series Sensors)	50704	
2.0" NPT Inline Sensor Tee Assembly (All ST Series Sensors)	50756	
3.0" NPT Inline Sensor Tee Assembly (All ST Series Sensors)	50775	
ST-002 Inline Sensor Removal PLUG (Allows ST Sensor Removal)	ST-002	
ST Series Sensor Tee Replacement O-Ring (All ST Series Tees)	MA-150	
ST Series Submersion Adapter Kit (Submersible Kit for all ST-Series Sensors)	MA-1026	
MA-WB Bluetooth Adapter for All ST Series Sensors (4-20mA & RS-485)	MA-WB	
MA-485 USB Adapter for All ST Series Sensors (4-20mA RS-485)	MA-485	
Bluetooth PC to Handheld Adapter (For iPyxis Firmware Updates)	MA-NEB	
PowerPack 1 (Single Channel Power Supply w/Bluetooth)	MA-BLE-1	
PowerPack 2 (Dual Channel Power Supply w/Bluetooth)	MA-BLE-2	
PowerPack 4 (Four Channel Power Supply w/Bluetooth)	MA-BLE-4	
MA-1100 (4.9' Flying Lead Cable for All ST Sensors)	MA-1100	
MA-C10 (10' Extension Cable for All ST Sensors)	50738	
MA-C50 (50' Extension Cable for All ST Sensors)	50705	
MA-C100 (100' Extension Cable for All ST Sensors)	50706	

Figure 1.

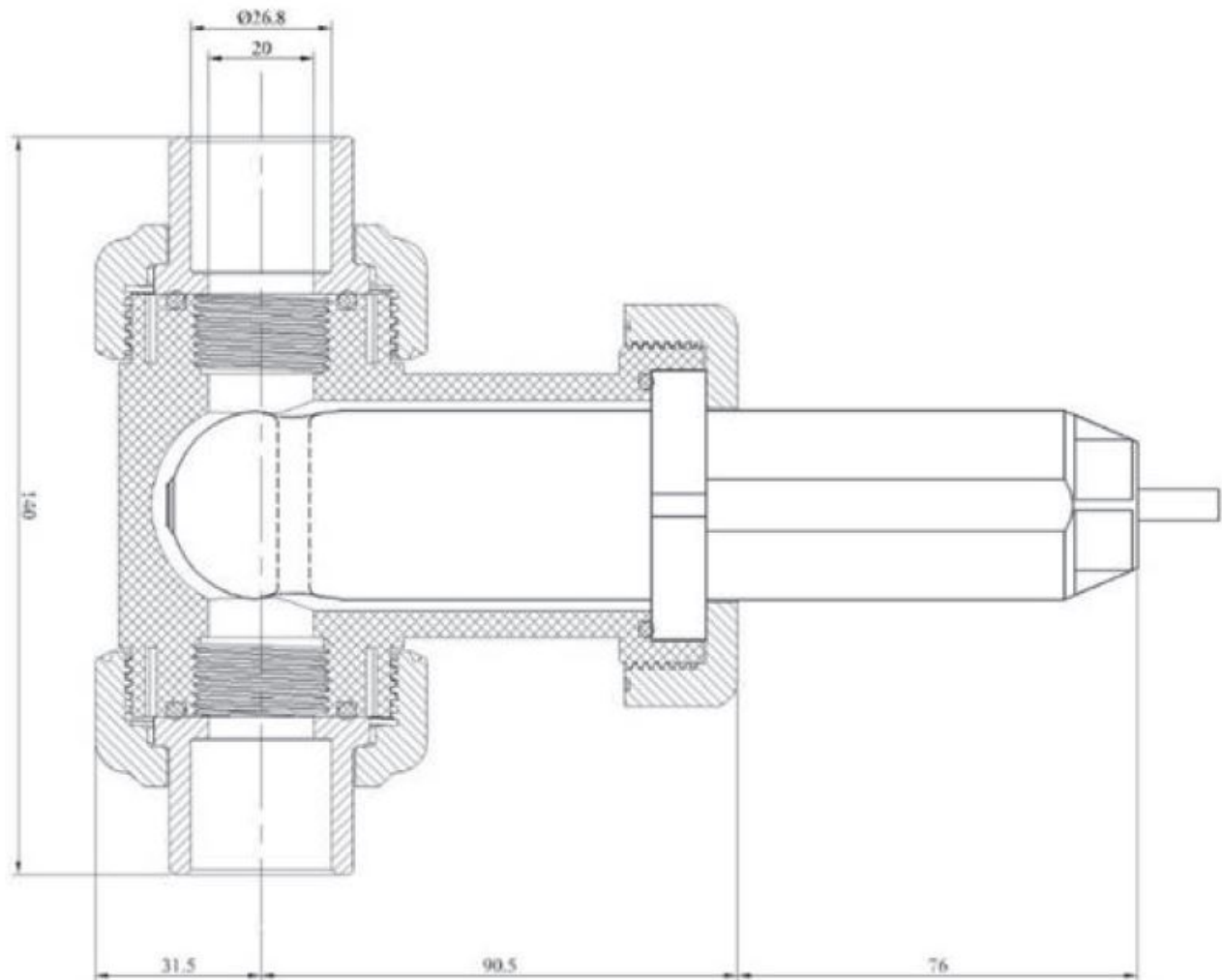
Installation

Piping

The ST-565 Series sensor can be installed in an inline flow application using the included Pyxis ST-001 Inline Tee

Assembly. The ST-001 offers 3/4" FNPT thread or socket weld adapters with unions for easy installation and sensor maintenance. To properly install the ST-565 Series sensor into the ST-001 Tee Assembly, follow the steps below:

1. Insert the provided O-ring into the O-ring groove on the tee.
2. Insert the ST-565 Series sensor into the tee.
3. Tighten the tee nut onto the tee to form a water-tight, compression seal.



Wiring

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

NOTE The negative 24V power terminal (power ground) and the negative 4–20mA terminal on the ST-565 Series sensor are internally connected. Follow the wiring table below to connect the ST-565 Series sensor to a controller:

Table 2.

Wire Color Designation

Red	24V +
Black	24V Power ground
White	4–20mA +
Green	* 4–20mA –
Blue	RS-485 A

Yellow RS-485 B

Clear Shield, earth ground. Internally connected to the power ground.

Connecting via Bluetooth

A Bluetooth adapter (P/N: MA-WB) can be used to connect a ST-565 Series sensor to a smart phone with the uPyxis® Mobile App or a computer with the uPyxis® Desktop App.

Display or Controller



7Pin Sensor



uPyxis Mobile



MA-1100

MA-WB

MA-C10

Connecting via USB

A USB-RS485 adapter (P/N: MA-485) can be used to connect a ST-565 Series sensor to a computer with the uPyxis® Desktop App.

NOTE Using non-Pyxis USB-RS485 adapters may result in permanent damage of the ST- 565 Series sensor communication hardware.

Display or Controller



7-Pin Sensor



uPyxis Desktop



MA-1100

MA-485

MA-C10

USB

Figure 4. USB connection to ST-565 Series sensor with MA-485 and uPyxis Destop App.

Setup and Calibration with uPyxis® Mobile App

Download uPyxis® Mobile App

Download uPyxis® Mobile App from Apple App Store or Google Play.



Figure 5. uPyxis® Mobile App installation

Connecting to uPyxis® Mobile App

Connect the ST-565 Series sensor to a mobile smart phone according to the following steps:

1. Open uPyxis® Mobile App.
2. On uPyxis® Mobile App, pull down to refresh the list of available Pyxis devices.
3. If the connection is successful, the ST-565 Series and its Serial Number (SN) will be displayed (Figure 6).
4. Press on the ST-565 Series sensor image.

Calibration Screen and Reading

When connected, the uPyxis® Mobile App will default to the Calibration screen. From the Calibration screen, you can perform calibrations by pressing on Zero Calibration, Slope Calibration, and 4–20mA Span. Follow the screen instructions for each calibration step.

Diagnosis Screen

From the Diagnosis screen, you can check the diagnosis condition as well as Send to Pyxis. This feature may be used for technical support when communicating with service@pyxislab.com. To perform a sensor Cleanliness Check, first select the Diagnosis Condition which defines the fluid type that the ST-565 Series sensor is currently measuring, then press Cleanliness Check. If the sensor is clean, a green Clean message will be shown. If the sensor is partially fouled, a yellow Becoming Dirty message will be shown. If the sensor is severely fouled, a red Dirty message will be shown. In this case, follow the procedure in the Methods to Cleaning the ST-565 Series Sensor section of this manual.

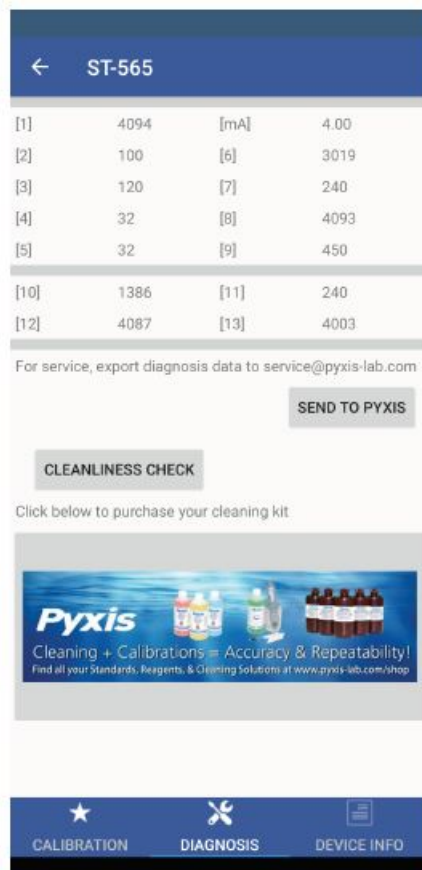


Figure 8.

Device Info Screen

From the Device Info screen. You can name the Device or Product as well as set the Modbus address.



Figure 9.

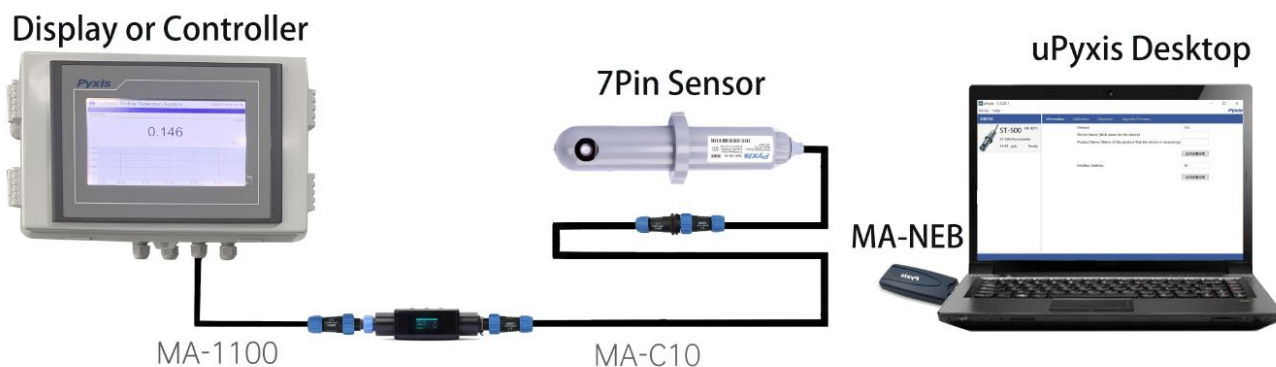


Figure 10. USB Connection to ST-565 sensor with MA-WB and MA-NEB and uPyxis Desktop App.

Setup and Calibration with uPyxis® Desktop App

Install uPyxis® Desktop App

Download the latest version of uPyxis® Desktop software package from: <https://pyxis-lab.com/upyxis/> this setup package will download and install the Microsoft.Net Framework 4.5 (if not previously installed on the PC), the USB driver for the USB-Bluetooth adapter (MA-NEB), the USB-RS485 adapter (MA-485), and the main uPyxis® Desktop application. Double click the uPyxis.Setup.exe file to install.

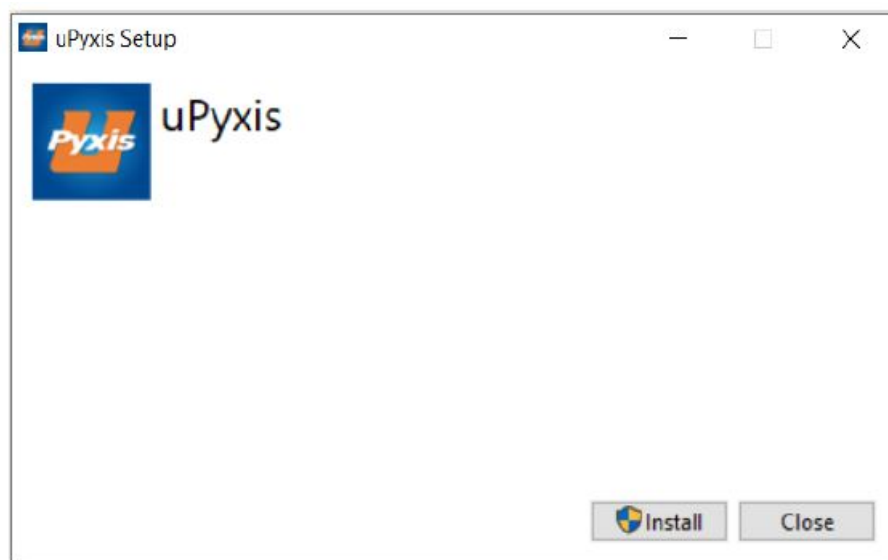


Figure 11. uPyxis® Desktop App installation

Click Install to start the installation process. Follow the screen instructions to complete the USB driver and uPyxis® installation.

Connecting to uPyxis® Desktop App

Connect the ST-565 Series sensor to a Windows computer using either a Bluetooth/USB adapter (P/N: MANEB) or a USB-RS485 adapter (P/N: MA-485) according to the following steps:

1. Plug the Bluetooth/USB adapter or USB-RS485 adapter into a USB port in the computer.
2. Launch uPyxis® Desktop App.
3. On uPyxis® Desktop App, click Device Connect via USB-Bluetooth or Connect via USB-RS485 (Figure 12).
4. If the connection is successful, the ST-565 Series and its Serial Number (SN) will be displayed in the left pane of the uPyxis® window.

NOTE After the sensor and Bluetooth is powered up, it may take up to 10 seconds for the adapter to establish the wireless signal for communication.

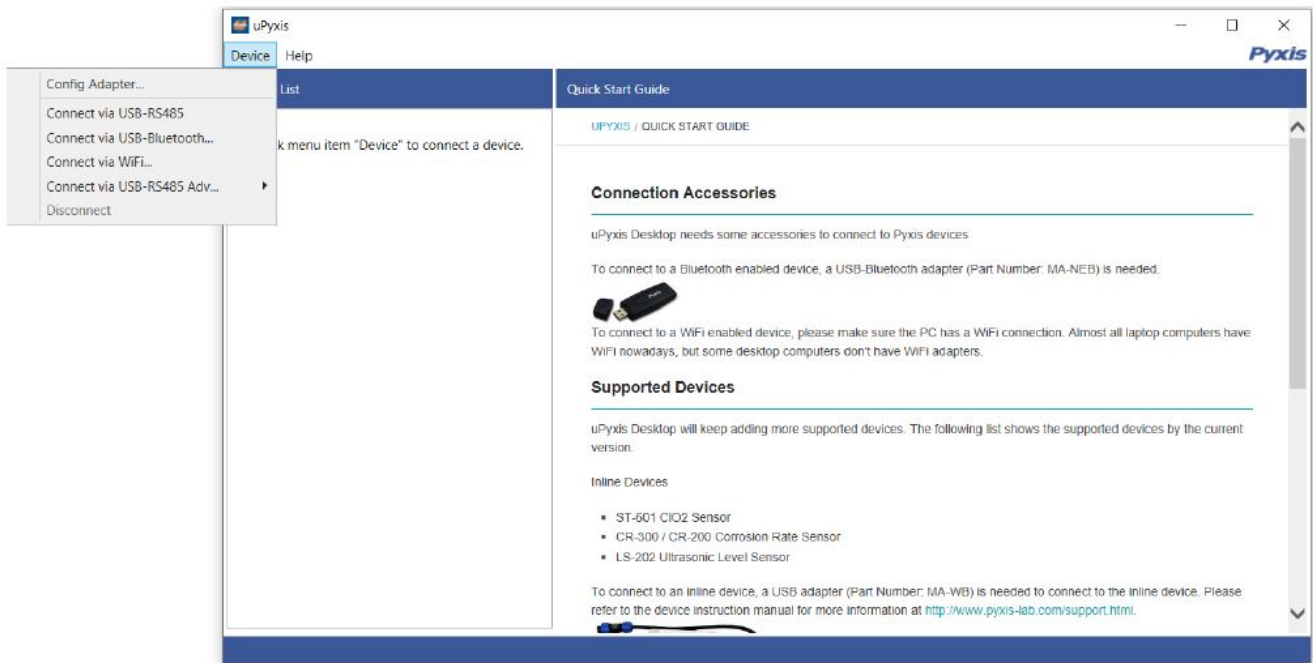


Figure 12.

Information Screen

Once connected to the device, a picture of the device will appear on the top left corner of the window and the uPyxis® Desktop App will default to the Information screen. On the Information screen you can set the information description for Device Name, Product Name, and Modbus Address, then click Apply Settings to save.

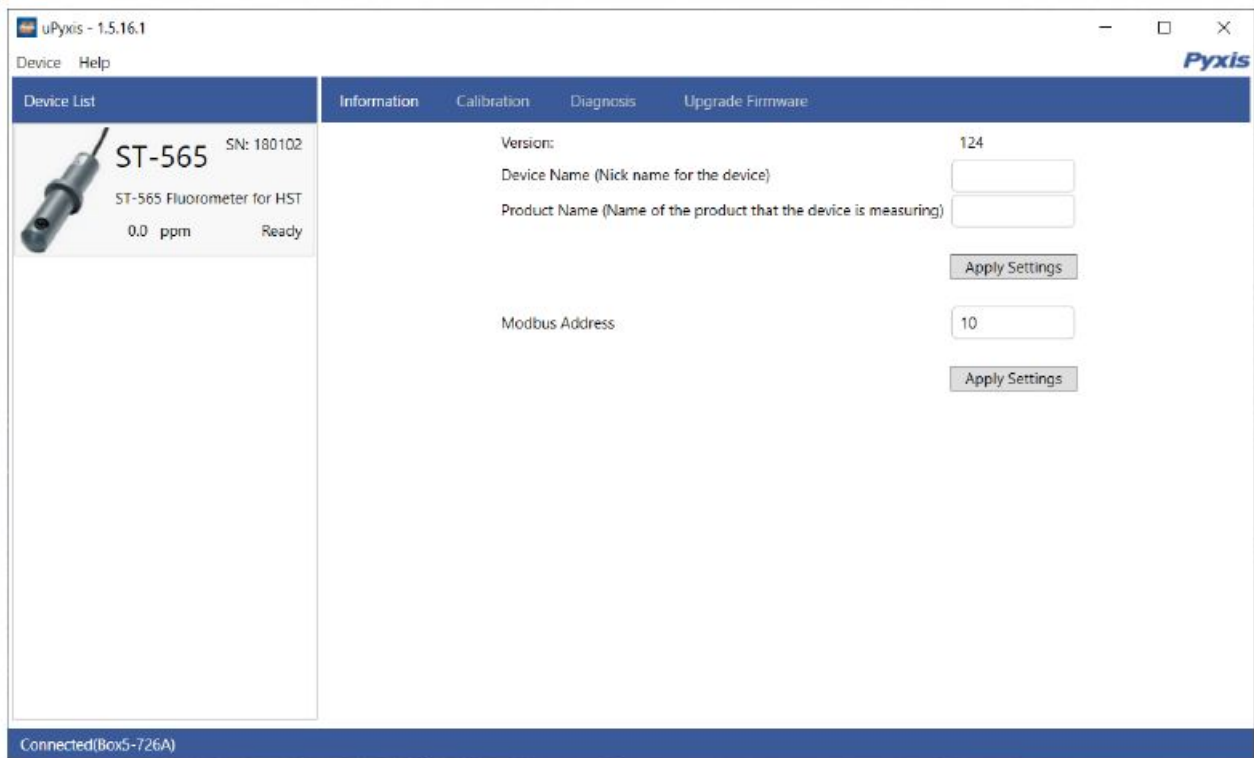


Figure 13.

Calibration Screen

To calibrate the device, click on Calibration. On the Calibration screen there are three calibration tabs, Zero Calibration, Slope Calibration, and 4-20mA Sp an. The screen also displays the reading of the de vice. The reading refresh rate is every 4 seconds.

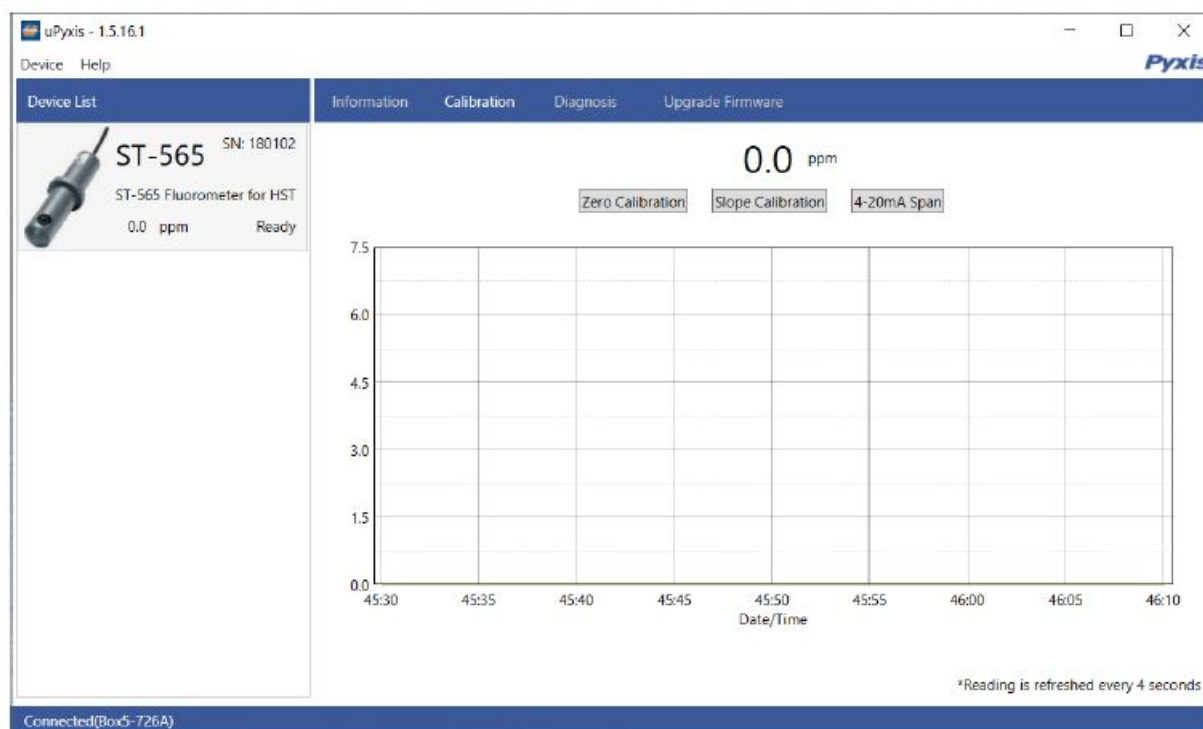


Figure 14.

Diagnosis Screen

After the device has been calibrated and installation has been completed, to check diagnosis, click on Diagnosis. When in the Diagnosis screen you can view the Diagnosis Condition of the device. This feature may be used for technical support when communicating with service@pyxis-lab.com.

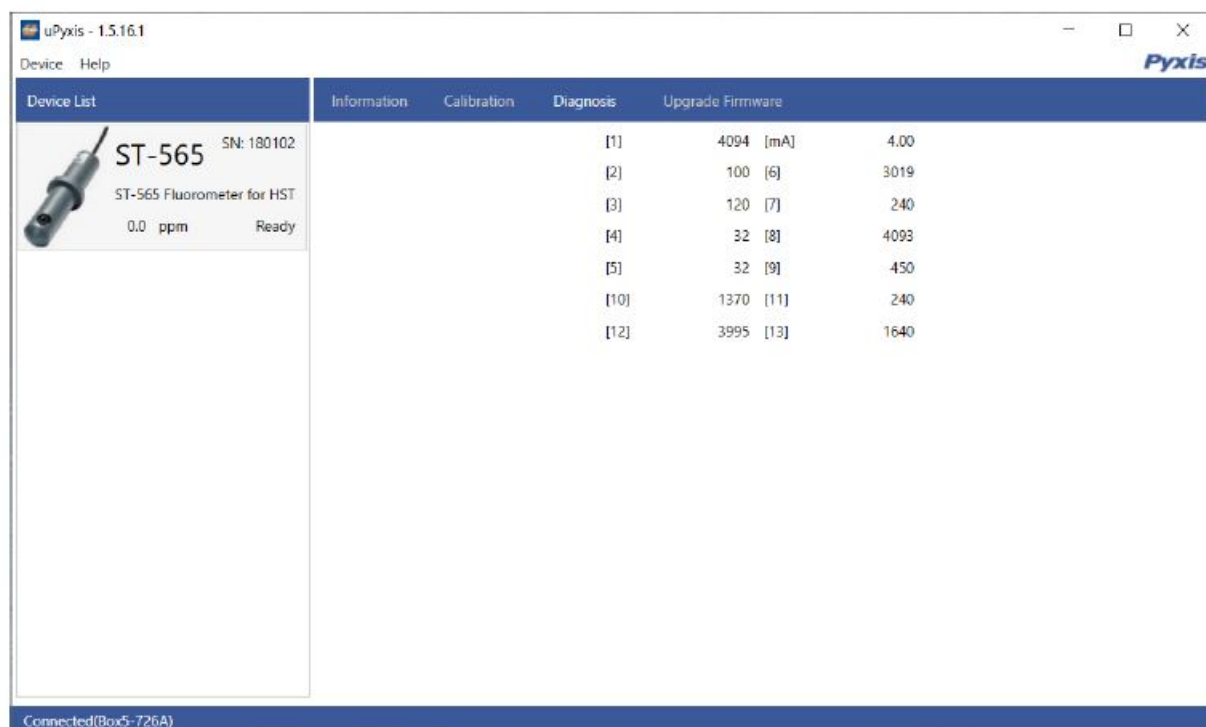


Figure 15.

Outputs

4–20mA Output Setup

The 4–20mA output of the ST-565 sensor is scaled as:

- Halogenated Tolytriazole (HST):
 - 4 mA = 0 ppm
 - 20 mA = 7.5 ppm

The 4–20mA output of the ST-565T sensor is scaled as:

- Tolytriazole (TTA):
 - 4 mA = 0 ppm
 - 20 mA = 10.0 ppm

Adjusting 4–20mA Span

Users may adjust the output scale using 4–20mA Span to change the HST or TTA ppm value corresponding to the 20 mA output via uPyxis®. For the uPyxis® Mobile App, press 4-20mA Span found on the Calibration and Reading Screen, shown in Figure 16. For the uPyxis® Desktop App, click 4-20mA Span found on the Calibration Screen, shown in Figure 17.

Communication using Modbus RTU

The ST-565 Series sensor is configured as a Modbus slave device. In addition to the HST or TTA ppm values, many operational parameters, including warning and error messages, are available via a Modbus RTU connection. Contact Pyxis Lab Customer Service (service@pyxis-lab.com) for more information.

Sensor Maintenance and Precaution

The ST-565 Series sensor is designed to provide reliable and continuous HST or TTA readings even when installed in moderately contaminated industrial cooling waters. Although the optics are compensated for the effects of moderate fouling, heavy fouling will prevent the light from reaching the sensor, resulting in low readings and the potential for product overfeed if the ST-565 Series sensor is used as part of an automated control system. When used to control product dosing, it is suggested that the automation system be configured to provide backup to limit potential product overfeed, for example by limiting pump size or duration, or by alarming if the pumping rate exceeds a desired maximum limit. The ST-565 Series sensor is designed to be easily removed, inspected, and cleaned if required. It is suggested that the ST-565 Series sensor be checked for fouling and cleaned/calibrated on a monthly basis. Heavily contaminated waters may require more frequent cleanings. Cleaner water sources with less contamination may not require cleaning for several months. The need to clean the ST-565 Series sensor can be determined by the Cleanliness Check using the uPyxis® Mobile App (see the Mobile Diagnosis Screen section).

Methods to Cleaning the ST-565 Series Sensor

Any equipment in contact with industrial cooling systems is subject to many potential foulants and contaminants. Our inline sensor cleaning solutions below have been shown to remove most common foulants and contaminants. A small, soft bristle brush, Q-Tips cotton swab, or soft cloth may be used to safely clean the sensor housing and the quartz optical sensor channel. These components and more come with a Pyxis Lab Inline Probe Cleaning Solution Kit (P/N: SER-01) which can be purchased at our online E-Store <https://pyxislab.com/product/probe-cleaning-kit/>



Figure 18. Inline Probe Cleaning Solution Kit

To clean the ST-565 Series sensor, soak the lower half of the sensor in 100 mL inline sensor cleaning solution for 10 minutes. Rinse the ST-565 Series sensor with distilled water and then check for the flashing blue light inside the ST-565 Series sensor quartz tube. If the surface is not entirely clean, continue to soak the ST-565 Series sensor for an additional 10 minutes. Use the small, soft bristle brush and Q-Tips cotton swabs as necessary to remove any remaining contaminants in the ST-565 Series sensor quartz tube.

Storage

Avoid long term storage at temperature over 100 °F. In an outdoor installation, properly shield the ST-565 Series sensor from direct sunlight and precipitation.

Troubleshooting

If the ST-565 Series sensor output signal is not stable and fluctuates significantly, make an additional ground connection — connect the clear (shield, earth ground) wire to a conductor that contacts the sample water electrically such as a metal pipe adjacent to the ST-565 Series tee.

Carry out routine calibration verification against a qualified Halogenated Tolytriazole (HST with ST-565) or Tolytriazole (TTA with ST-565T) standard. After properly cleaning the ST-565 Series sensor, carry out the zero point calibration with distilled water and slope calibration using the qualified standard. Pyxis Lab HST Calibration Standard can be purchased at our online Estore/Catalog <https://pyxis-lab.com/product/halogenstable-triazole-calibration-standards/>. Pyxis Lab TTA Calibration Standard can be purchased at our online Estore/Catalog <https://pyxis-lab.com/product/tta-standards/>.

Contact Us

Pyxis Lab, Inc

1729 Majestic Dr. Suite 5
Lafayette, CO 80026 USA
www.pyxis-lab.com
Phone: +1 (866) 203-8397
Email: service@pyxis-lab.com

Documents / Resources



[Pyxis ST-565T HST or TTA Inline Sensors](#) [pdf] User Manual
ST-565, ST-565T, HST or TTA Inline Sensors, ST-565T HST or TTA Inline Sensors

Manuals+.