

Inline Turbidity Probe Series Operational Manual

Model # ST-730, ST-730B, ST-730SS, ST-731, and ST-735





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The Pyxis ST-730 series of inline probes measure turbidity in water using a white LED as the excitation light source and by measuring the scattered light at a 90-degree angle with respect to the excitation beam. The fluidic and optical arrangement of the ST-730 series probes is designed to overcome many shortcomings associated with other inline turbidimeters. It can be easily inserted into the custommade tee with a compression fitting port designed to ensure correct positioning of the ST-730 series probe in the fluid stream. The ST-730 series probes custom mounting tee has two ¾ inch female NPT ports for plumbing into an existing ¾ inch sample water line. The ST-730 series probes can be also submersed into a vessel with using the Pyxis MA-102S submersion adapter. The ST-730 series probes can be connected to any device that accepts an isolated or non-isolated 4-20mA input. The ST-730 series probes have a short fluidic channel that can be easily cleaned. Other features of the Pyxis ST-730 series probes include:

- Menu-driven calibration procedure using uPyxis APP for smartphone via Bluetooth or by USB to uPyxis APP for Desktop. Any of the formazin turbidity standards in the range of solutions offered by Pyxis Lab (10 to 1,000 NTU) can be used for the calibration. Select the standard that fits the range scale of your probe for proper calibration. The standard can be the water sample itself when the turbidity value of the sample has been measured by another turbidimeter that has been calibrated. This allows the ST-730 series probes to be calibrated without being removed from the system.
- Diagnostic information (probe fouling, color or turbidity over range, failure modes) can be communicated to digital displays via Modbus RTU.
- The ST-730 series probes can be easily removed from the custom tee for cleaning without the need or any tools.

The ST-730 series of probes measure light scattering for the 0 – 100 NTU range using a white LED as the incident light source, the 100 - 1000 NTU range using a 950 nm LED light source, and the 950 nm absorbance for the 1000 - 10,000 NTU range. The ST-730 series turbidity probes automatically select the measurement method needed for the sample according to the sample turbidity range detected when inserted inline.

The Pyxis ST-730 series probes all use long life LEDs as their light source and will not require replacement unlike conventional turbidity probes. It can be operated under a wide range of ambient conditions without the need for humidity and temperature regulation. The performance of the ST-730 series of probes can be stable and consistent for a very long period time.



2. Unpacking Instrument

Remove the instrument and accessories from the shipping container and inspect each item for any damage that may have occurred during shipping. Verify that all accessory items are included. If any item is missing or damaged, please contact Pyxis Lab Customer Service at <u>serice@pyxis-lab.com</u>.

2.1. Standard Accessories

- ¾" NPT Inline Pyxis Tee Set (Tee, O-ring, and Nut) (SKU: 50704)
- Probe Bulkhead Cable w/ Male Adapter
- Flying Lead Cable w/ Female Adapter & Open Leads (SKU: MA-1100) (Wired to Controller)

2.2. Optional Accessories

- WiFi/Bluetooth Adaptor (Item Number: MA-WB) For Wireless Calibration via uPyxis APP for Smartphone
- Turbidity Standard 10 NTU (SKU: 57010-4) For ST731 uPyxis Calibration
- Turbidity Standard 50 NTU (SKU: 57009) For ST730 uPyxis Calibration
- Turbidity Standard 100 NTU (SKU: 57010) For ST730 uPyxis Calibration
- Turbidity Standard 200 NTU (SKU: 57010-1) For ST730B uPyxis Calibration
- Turbidity Standard 500 NTU (SKU: 57010-2) For ST730B uPyxis Calibration
- Turbidity Standard 1000 NTU (SKU: 57010-3) For ST730B or ST735 uPyxis Calibration
- ST Series Inline Probe Cleaning Solution (SKU: SER-01) For Proper Probe Cleaning
- **1.5 inch OD O-ring** (SKU: MA-150)
- Extension Cable 50 feet (SKU: 50705)
- Extension cable 100 feet (SKU:5070)
- Submersion Adapter (SKU: MA-102S) For Submersed Installation into a Tank or Vessel



	ST-730	ST-730B	ST-730SS	ST-731	ST-735				
P/N	53201	53202	ST730SS	53505	53204				
Range	0 – 100 NTU	0 – 1,000 NTU	0 – 100 NTU	0 – 10 NTU	0 – 10,000 NTU				
Resolution	0.1 NTU	1 NTU	0.1 NTU	0.05 NTU	10 NTU				
Accuracy		± 2% of reading	or 1 NTU which	ever is grater					
Method	Nephelor	netric, with light so	ources of White	LED and IR LED (860nm)				
Power Supply		22 – 26V DC,	Power Consump	otion – 1W					
Outputs	Isolated 4 – 20) mA Analog Outpu	it, Isolated RS-4	85 Digital Outpu	t, Supporting				
	MODBUS protocol								
Dimension	Length 6.8 inch, body diameter 1.44 inch								
Weight	0.37 pounds (2.5 lbs ST-730SS)								
Installation	Custom Tee with ¾ NPT Glue & Thread								
Material	CPVC (304 Stainless Steel for ST-730SS)								
Pressure	Up to 100 psi (ST-730SS - Up to 2.0 MPa (290 PSI) at 65°C (149 °F)								
Temperature	Operation 40 – 120 °F, Storage 20 – 140 °F (ST-700SS - 0° C ~ 40 °C (32~104 °F)								
Cable Length	5 feet, terminated with IP6 connectors. 30 feet, 60 feet extension cables available								
Calibration	Two point calibration against standard solution								
Rating			IP66						
Regulation			CE marked						

4. Installation

It is recommended to install the ST-730 series probe tee in the pipe system in a vertical flow pattern. Place the O-ring on the ST-730 series probe. Insert the ST-730 series probe into the tee. Make sure the fluidic channel in the ST-730 series probe is aligned with the sample flow direction.



4.1. Quick 4 -20 mA Start

Note: The negative 24V power terminal (power ground) and the negative 4-20 mA terminal on the ST-730 series probe are internally connected.

If the power ground terminal and the negative 4-20 mA terminal in the controller are internally connected (non-isolated 4-20mA input), it is unnecessary to connect the 4-20 mA negative wire (blue) 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.

Wire Color	Designation
Red	24 V
Black	Power ground
White	4-20 mA +
Green	4-20 mA - Internally connected to the power ground
Blue	RS-485 A
Yellow	RS-485 B
Clear	Shield, solution ground

Follow the wiring table below to connect the ST-730 series probe to a controller.





4.2. Connecting via WiFi/Bluetooth

The connection between a computer and the ST-730 series probe via WiFi/Bluetooth adapter (P/N: MA-WB) and use the **uPyxis APP** for smart phone app to diagnose and calibrate



WiFi/Bluetooth interface.

4.3. Connecting via USB

The connection between a computer and the ST-730 series probe via USB-RS485 adapter. Use the USB-RS485 adapter provided by Pyxis Lab Inc. (Item Number: MA-485). Using other USB-485 adapters may result in permanent damage of the ST-730 series probe communication hardware.





- 5. Probe Calibration with uPyxis Mobile App
- 5.1. Download uPyxis Mobile App

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

Calibration Standards Available Online At

https://pyxis-lab.com/product-category/calibration-standards-reagents/

5.2. Connecting ST-730 to uPyxis Mobile App

Turn on Bluetooth on your mobile phone (Do not pair the phone Bluetooth to the probe). Open uPyxis Mobile, uPyxis App searches for probe then connects to probe, click on **ST-730** probe.





When connected, uPyxis Mobile App will default to the **Calibration** screen. From the Calibration screen you can see the readings and calibrate the ST-730 probe. To perform Zero Calibration, click on **Zero Calibration** and follow the uPyxis app prompts. To perform Slope Calibration, click on **Slope Calibration** and follow the uPyxis app prompts. To perform 4-20 mA Span, click on **4-20 mA Span** and follow the uPyxis app prompts.



Diagnosis condition can be checked by, click on **Diagnosis** to enter the diagnosis screen. In the Diagnosis screen you can check the condition of the meter, export, and upload diagnosis data. To export and upload diagnosis data, click on **Export & Upload**. Fill in the user information then click on **Upload Diagnosis Data**.





To set the Device Information, click on **Device Info** to enter the Device Info screen. In the Device Info screen, you can name the device and product.

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🗸 uPyxis	ST-730		
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The product name	that the device is me	asuring	
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5.3. Connecting ST-730B to uPyxis Mobile App

Turn on Bluetooth on your mobile phone (Do not pair the phone Bluetooth to the probe). Open uPyxis Mobile, uPyxis App searches for probe then connects to ST-730B probe, click on **ST-730B probe**.

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When connected, uPyxis Mobile App will default to the **Calibration** screen. From the Calibration screen you can see the readings and calibrate the ST-730B probe. To perform Zero Calibration, click on **Zero Calibration** and follow the uPyxis app prompts. To perform Slope Calibration, click on **Slope Calibration** and follow the uPyxis app prompts. To perform 4-20 mA Span, click on **4-20 mA Span** and follow the uPyxis app prompts.



Diagnosis condition can be checked by, click on **Diagnosis** to enter the diagnosis screen. In the Diagnosis screen you can check the condition of the meter, export, and upload diagnosis data. To export and upload diagnosis data, click on **Export & Upload**. Fill in the user information then click on **Upload Diagnosis Data**.





To set the Device Information, click on **Device Info** to enter the Device Info screen. In the Device Info screen, you can name the device and product.

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5.4. Connecting ST-730SS to uPyxis Mobile App

Turn on Bluetooth on your mobile phone (Do not pair the phone Bluetooth to the probe). Open uPyxis Mobile, uPyxis App searches for probe then connects to probe, click on **ST-730SS probe**.

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-	Searching for Probe	Conne	ected, Click o	n Probe
L				

When connected, the uPyxis Mobile App will default to the **Calibration** screen. From the Calibration screen you can see the readings and calibrate the ST-730SS probe. To perform Zero Calibration, click on **Zero Calibration** and follow the uPyxis app prompts. To perform Slope Calibration, click on **Slope Calibration** and follow the uPyxis app prompts. To perform 4-20 mA Span, click on 4-20 mA Span and follow the uPyxis app prompts.



Diagnosis condition can be checked by, click on **Diagnosis** to enter the diagnosis screen. In the Diagnosis screen you can check the condition of the meter, export, and upload diagnosis data. To export and upload diagnosis data, click on **Export & Upload**. Fill in the user information then click on **Upload Diagnosis Data**.





To set the Device Information, click on **Device Info** to enter the Device Info screen. In the Device Info screen, you can name the device and product.

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Tap the Modbus	address to change it		
	Diagosis		 Device Info



5.5. Connecting ST-731 to uPyxis Mobile App

Turn on Bluetooth on your mobile phone (Do not pair the phone Bluetooth to the probe). Open uPyxis Mobile, uPyxis App searches for probe then connects to ST-731 probe, click on ST-731 probe.



When connected, the uPyxis Mobile App will default to the **Calibration** screen. From the Calibration screen you can see the readings and calibrate the ST-731 probe. To perform Zero Calibration, click on **Zero Calibration** and follow the uPyxis app prompts. To perform Slope Calibration, click on **Slope Calibration** and follow the uPyxis app prompts. To perform 4-20 mA Span, click on **4-20 mA Span** and follow the uPyxis app prompts.





Diagnosis condition can be checked by, click on **Diagnosis** to enter the diagnosis screen. In the Diagnosis screen you can check the condition of the meter, export, and upload diagnosis data. To export and upload diagnosis data, click on **Export & Upload**. Fill in the user information then click on **Upload Diagnosis Data**.

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To set the Device Information, click on **Device Info** to enter the Device Info screen. In the Device Info screen, you can name the device and product.





5.6. Connecting ST-735 to uPyxis Mobile App

Turn on Bluetooth on your mobile phone (Do not pair the phone Bluetooth to the probe). Open uPyxis Mobile, uPyxis App searches for probe then connects to ST-735 probe, click on ST-735 probe.



When connected, the uPyxis Mobile App will default to the **Calibration** screen. From the Calibration screen you can see the readings and calibrate the ST-735 probe. To perform Zero Calibration, click on **Zero Calibration** and follow the uPyxis app prompts. To perform Low Range Calibration, click on **Low Range Calibration** and follow the uPyxis app prompts. To perform Mid Range Calibration, click on **Mid Range Calibration** and follow the uPyxis app prompts. To perform High Range Calibration, click on **High Range Calibration** and follow the uPyxis app prompts. To perform 4-20 mA Span, click on **4-20 mA Span** and follow the uPyxis app prompts.





Diagnosis condition can be checked by, click on **Diagnosis** to enter the diagnosis screen. In the Diagnosis screen you can check the condition of the meter, export, and upload diagnosis data. To export and upload diagnosis data, click on **Export & Upload**. Fill in the user information then click on **Upload Diagnosis Data**.



To set the Device Information, click on **Device Info** to enter the Device Info screen. In the Device Info screen, you can name the device and product.

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6. Probe Calibration with uPyxis Desktop App

Download uPyxis Desktop App 6.1.

Download uPyxis Desktop App from https://pyxis-lab.com/support-2/.

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6.2. UnZip uPyxis Desktop App

Find your downloaded uPyxis Setup 1.3.8 file, **Right Click on the file**, **Extract All**, and then **Extract**.





6.3. Installing uPyxis Desktop App

Once the uPyxis Desktop App has been extracted. Find the extracted **uPyxis Setup** file and left click, click on **Run**, and then click **Install**. After install has been clicked the Setup Progress will continue. Follow the step during installation process.

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6.4. Connecting to uPyxis Desktop App

Open **uPyxis Desktop App** on your desktop. When the desktop app opens, to find your device, click on **Device**, then **Connect via WiFi**.

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Click menu item "Device" to connect a device. Connection Accessories UPysis Desktop needs some accessories to connect to Pysis devices UPysis Desktop needs some accessories to connect to Pysis devices To connect to a Buscioth enabled device, a USB-Bluetoth adapter (Part Number: MA-NEB) is needed. Connection a NWFI enabled device, a USB-Bluetoth adapter (Part Number: MA-NEB) is needed. Connect to a Buscioth enabled device, a USB-Bluetoth adapter (Part Number: MA-NEB) is needed. UPysis Desktop will keep adding more supported devices. The following list shows the supported devices by the current version. Intel Devices ST-00 IOC 2 Sensor C. B-300 ICR-200 Corrosion Rate Sensor ST-00 IOC 2 Sensor C. B-300 ICR-200 Corrosion Rate Sensor C. B-300 ICR-200 Corrosion Rate Sensor C. B-300 ICR-200 Corrosion Rate Sensor Pasae refer to the device instruction manual for more information at http://www.pysis-ada.com/support.tem.	evice List	Quick start Guide
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Supported Devices uPysis Desktop will keep adding more supported devices. The following list shows the supported devices by the current version. linine Devices • ST-200 1002 Sensor • CR-300 / CR-200 Conrosion Rate Sensor • LS-202 Uttrasonic Level Sensor • LS-202 Uttrasonic Level Sensor To connect ba a initine device, a USB adapter (Part Number: MA-WB) is needed to connect to the latine de Please refer to the device instruction manual for more information at http://www.pysis-adu.com/support.html.		computers have WIFi nowadays, but some desktop computers don't have WIFi adapters.
uPysis Desklop will keep adding more supported devices. The following list shows the supported devices by the current version. Inline Devices ST-601 DD2 Sensor CR-300 J CR-200 Corrosion Rate Sensor CR-300 J CR-200 Corrosion Rate Sensor L.5-202 Uttrasonic Level Sensor To connect to an initine device, a USB adapter (Part Number: MA-WB) is needed to connect to the isline de Please refer to the device instruction manual for more information at http://www.pysis-ada.com/support.html Please refer to the device instruction manual for more information at http://www.pysis-ada.com/support.html Please refer to the device instruction manual for more information at http://www.pysis-ada.com/support.html Please refer to the device instruction manual for more information at http://www.pysis-ada.com/support.html Please refer to the device instruction manual for more information at http://www.pysis-ada.com/support.html Please refer to the device instruction manual for more information at http://www.pysis-ada.com/support.html Please refer to the device instruction manual for more information at http://www.pysis-ada.com/support.html Please refer to the device instruction manual for more information at http://www.pysis-ada.com/support.html Please refer to the device instruction manual for more information at http://www.pysis-ada.com/support.html Please refer to the device instruction manual for more information at http://www.pysis-ada.com/support.html Please refer to the device instruction manual for more information at http://www.pysis-ada.com/support.html Please refer to the device instruction manual for more information at http://www.pysis-ada.com/support.html Please refer to the device instruction manual for more information at http://www.pysis-ada.com/support.html Please refer to the device instruction manual for more information at http://www.pysis-ada.com/support.		Supported Devices
The current version. Inline Devices • ST-601 CIX2 Sensor • CR-300 / CR-300 Contosion Rate Sensor • L3-302 Utrasonic Level Sensor To connect to an Inline device, a USB adapter (Part Number: MA-WB) is needed to connect to the Isline de To connect to an Inline device, a USB adapter (Part Number: MA-WB) is needed to connect to the Isline de Please refer to the device Instruction manual for more Information at Infig./Invent pyrid-abb com/support Inmi.		uPyxis Desktop will keep adding more supported devices. The following list shows the supported devices by
Inline Devices ST-601 CIO2 Sensor CR-300 (CR-300 CR-300 Correston Rate Sensor LS-302 Uttrasonic Level Sensor To connect to an inline device, a USB adapter (Part Number: MA-WB) is needed to connect to the inline de Please refer to the device instruction manual for more information at http://www.pyxs-lab.com/support.html.		the current version.
ST-601 CIO2 Semior CR-300 C/CR-200 Corrosion Rate Semior LS-202 Uttrasonic Level Senior LS-202 Uttrasonic Level Senior To connect to an inline device, a USB adapter (Part Number: MA-WB) is needed to connect to the inline de Please refer to the device instruction manual for more information at http://www.pyxs-ab.com/support.html.		Inline Devices
CR-3001 CPR-300 Controlsion Rate Sensor LS-202 Ultrasonic Level Sensor To connect to an inite device, a USB adapter (Part Number: MA-VHB) is needed to connect to the initie de Please refer to the device instruction manual for more information at http://www.pyvis-lab.com/support.html.		ST-601 CIO2 Sensor
L_s_czz Utmissionic Level semiori To connect to an intelline device, a USB adapter (Part Number: MA-WB) is needed to connect to the intelline de Please refer to the device instruction manual for more information at http://www.pyx8-ab.com/support.html		CR-300 / CR-200 Corrosion Rate Sensor
To connect to an inline device, a USB adapter (Part Number: MA-WB) is needed to connect to the inline der Please refer to the device instruction manual for more information at http://www.pyrsi-lab.com/support.html.		LS-202 Ditrasonic Level Sensor
Prease refer to the device instruction manual for more information at http://www.pyxis-ab.com/support.html.		To connect to an inline device, a USB adapter (Part Number: MA-WB) is needed to connect to the inline device. Device refer to the device instruction many information at http://www.neede.html
		Реазстелено на сечисе возволит напозног писе вногналот ас поритичи, руховах солтоврухствля.
Ψ. ·		Looking for something not on the list? Please send an email to service@pyxis-lab.com.





6.5. Connecting to ST-730 via uPyxis Desktop App

When connected via WiFi, in the Discovered Devices box there will be the device product name (If no device product name in the Discovered Devices box, click **Refresh**). If device product name shows in the box, then click on **Connect to Device**. Once connected to the device on the main screen a picture of the device will appear on the top left corner. On the main screen you can set the information description for Device Name and Product Name, then click **Set** to save.

🎯 uPyxis		- 🗆 X	
Device Help		Pyxis	
Device List	Quick Start Guide		
Click menu item "Device" to connect a device.	COnnect via WiFi X	a devices	
Davica		h adapter (Part Number: MA-NEB) is needed.	
Refresh	*After connecting to the WiFi device, the internet connection may be disconnected.	PC has a WF connection. Almost all laptop lers don't have WFI adapters. The following list shows the supported devices by the	
Connect to Device	Connect to Device Cancel To connect to an inline device, a USB adapter (Part Num Please refer to the device instruction manual for more and Use of the text of the device instruction manual for more and Looking for something not on the list? Please send an end	ber: MA-WB) is needed to connect to the inline device, ormation at http://www.pyxsi-lab.com/support.html.	
[⊚] uPyxis Infor	mation	- 🗆 X	
Device Help		Pyxis	
ST-730 SN: 170032 ST-730 Turbidimeter 100 NTU Ready	Version: Device Name (Nick name for the device) Product Name (Name of the product that the o Modbus Address	device is measuring)	Device Name Product Name Set
Picture of Device		Set	



To calibrate the device, click on **Calibration**. On the Calibration screen there are three calibration tabs, **Zero Calibration**, **Slope Calibration**, and **4-20 mA Span**. The screen does also display the reading of the device. The reading refreshed rate is every 4 seconds.

🎯 uPyxis Device Help	Calibration	– 🗆 × Pyxis
Device List	Information Calibration Diagnosis Upgrade Firmware	
ST-730 ^{SN: 170032} ST-730 Turbidimeter 100 NTU Ready	NTU Zero Calibration Slope Calibration 4-20mA Sp	an
Ze	ro Calibration Slope Calibration	4-20 mA Span
	09:00 09:30 Date/Time 10:00 Refresh Rate *Readin	10:30 g is refreshed every 4 seconds

To perform Zero Calibration, click on **Zero Calibration**. Then follow the instruction on how to calibrate, then click **Ok**.





To perform Slope Calibration, click on **Slope Calibration**. Then follow the instruction on how to calibrate, then click **Slope Calibration**.

uPyxis		-
vice Help	Information Calibration Diagnosis Upgrade Firmware	Py.
ST-730 ^{SN: 170032} ST-730 Turbidimeter 100 NTU Ready	Slope Calibration 100 NTU Zero Calibration Slope Calibration 4-20mA Span	
Follow Instruction	Slope Calibration Put the probe into a solution with known turbidity (1 to 100 NTU). Slope Calibrate Cancel	
	20	
	09:00 09:30 10:00 10:30	11:00

To perform 4-20 mA Span, click on **4-20 mA Span**. Then follow the instruction on how to calibrate, then click 4-20 mA Span.





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.

💿 uPyxis Device Help	Diagnosis		Diagnosis			1	Pyxis
Device List		Calibration Dia	ignosis U				
ST-730 ^{SN: 170032} ST-730 Turbidimeter 100 NTU Ready		[1] [2] [3] [4] [5] [10] [12]	212 30 11 50 10 2915 1476	[mA] [6] [7] [8] [9] [11] [13]	11.98 3336 400 1476 2 2707 2		



6.6. Connecting to ST-730B via uPyxis Desktop App

When connected via WiFi, in the Discovered Devices box there will be the device product name (If no device product name in the Discovered Devices box, click **Refresh**). If device product name shows in the box, then click on **Connect to Device**. Once connected to the device on the main screen a picture of the device will appear on the top left corner. On the main screen you can set the information description for Device Name and Product Name, then click **Set** to save.

🎯 uPyxás		- 🗆 ×	
Device Help		Pyxis	
Device List	Quick Start Guide		
Click menu item "Device" to connect a device.	UPYXS / QUICK START GUIDE	^	
	Connect via WiFi X Discovered Devices:		
Device	Nadapter (Part Number ST500-WIFI-3D03	r: MA-NEB) is needed.	
Refresh	PC has a WFI come lers don't have WFI ad Refresh	ction. Almost all laptop tapters.	
	*After connecting to the WiFi device, the internet connection may be disconnected.	s the supported devices by the	
Connect to Device	Connect to Device Cancel		
L	To connect to an inline device, a USB adapter (Part Number: MA-WB) is needed to Please refer to the device instruction manual for more information at http://www.py	to connect to the inline device. yxis-lab.com/support.html.	
	Looking to sometiming notion the list r recase sense an emain to service gs/vixi-au	• • • • •	
o uPyxis Inform	nation	– 🗆 X	
Device Help Device List Inform	ation Calibration Diagnosis Upgrade Firmware	Pyxis	
ST-730 SN: 170032	Version: Device Name (Nick name for the device)	103	Device Name
ST-730 Turbidimeter	Product Name (Name of the product that the device is measuring)		Product Name
▲		Set 🗸	Set
	Modbus Address	15	
Picture of Device		Set	



To calibrate the device, click on **Calibration**. On the Calibration screen there are three calibration tabs, **Zero Calibration**, **Slope Calibration**, and **4-20 mA Span**. The screen does also display the reading of the device. The reading refreshed rate is every 4 seconds.

) uPyxäs ivice Help	Calibration	– 🗆 × <i>Pyxis</i>
evice List	Information Calibration Diagnosis Upgrade Firmware	
ST-730 SN: 170032	UTU	
ST-730 Turbidimeter	Zero Calibration Slope Calibration 4-20mA Sp	an
100 NTU Ready	100	
Z	ero Calibration Slope Calibration	4-20 mA Spar
	80	
	60	
	40	
	20	
	09:00 09:30 10:00	10:30
	Date/Time	
	*Readin	a is refreshed every 4 seconds
	Refresh Rate	g is remember every 4 seconds

To perform Zero Calibration, click on **Zero Calibration**. Then follow the instruction on how to calibrate, then click **Ok**.

🙆 uPyxas		
Device Help Pevice List ST-730 SN: 170032 ST-730 Turbidimeter 100 NTU Ready Follow Instruction	Information Calibration Diagnosts Upgrade Firmware Zero Calibration 100 NTU Zero Calibration Slope Calibration 4-20mA Span	Pyxis
	09:00 09:30 10:00 10:30 Date/Time	11:00 ed every 4 seconds



To perform Slope Calibration, click on **Slope Calibration**. Then follow the instruction on how to calibrate, then click **Slope Calibration**.

uPyxis		-
vice Help	Information Calibration Diagnosis Upgrade Firmware	Py.
ST-730 ^{SN: 170032} ST-730 Turbidimeter 100 NTU Ready	Slope Calibration 100 NTU Zero Calibration Slope Calibration 4-20mA Span	
Follow Instruction	Slope Calibration Put the probe into a solution with known turbidity (1 to 100 NTU). Slope Calibrate Cancel	
	20	
	09:00 09:30 10:00 10:30	11:00

To perform 4-20 mA Span, click on **4-20 mA Span**. Then follow the instruction on how to calibrate, then click 4-20 mA Span.





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.

💿 uPyxis Device Help	Diagnosis		Diagnosis			1	Pyxis
Device List		Calibration Dia	ignosis U				
ST-730 ^{SN: 170032} ST-730 Turbidimeter 100 NTU Ready		[1] [2] [3] [4] [5] [10] [12]	212 30 11 50 10 2915 1476	[mA] [6] [7] [8] [9] [11] [13]	11.98 3336 400 1476 2 2707 2		



6.7. Connecting to ST-730SS via uPyxis Desktop App

When connected via WiFi, in the Discovered Devices box there will be the device product name (If no device product name in the Discovered Devices box, click **Refresh**). If device product name shows in the box, then click on **Connect to Device**. Once connected to the device on the main screen a picture of the device will appear on the top left corner. On the main screen you can set the information description for Device Name and Product Name, then click **Set** to save.

🔕 uPyxas		- o >	
Device Help		Рух	is
Device List	Quick Start Guide		
Click menu item "Device" to connect a device.	UPYOS / QUICK START GUIDE		^
	Connect via WiFi ×	·	
	Discovered Devices:	is devices n adapter (Part Number: MA-NEB) is needed.	
Device	ST500-WIFI-3D03		
Refresh	Refresh	FC has a WFI connection. Almost all laptop lers don't have WIFI adapters.	
	*After connecting to the WiFi device, the internet connection may be disconnected.	The following list shows the supported devices by the	
Connect to Device	Connect to Device Cancel		
	To connect to an inline device, a USB adapter (Part Nu Please refer to the device instruction manual for more in	aber. MA-WB) is needed to connect to the inline device. formation at http://www.pyrsi-lab.com/support.html.	
	Looking for something not on the list? Please send an e	mail to service@pyxis-lab.com.	~
© uPyxis Inform Device Help	nation	– – × Рух	is
Device List	Mation Calibration Diagnosis Opgra	103	
ST-730 ST-730	Device Name (Nick name for the device)		Device Name
ST-730 Turbidimeter 100 NTU Ready	Product Name (Name of the product that the	device is measuring)	Product Name
		Set	Set
	Modbus Address	15	
Picture of Device		Set	



To calibrate the device, click on **Calibration**. On the Calibration screen there are three calibration tabs, **Zero Calibration**, **Slope Calibration**, and **4-20 mA Span**. The screen does also display the reading of the device. The reading refreshed rate is every 4 seconds.

💿 uPyxās Device Help	Calibratio	n	– 🗆 × Pyxis
Device List	Information Calibration	Diagnosis Upgrade Firmware	
ST-730 SN: 170032		NTU	
ST-730 Turbidimeter	Zero Ca	libration Slope Calibration 4-20mA Span	
100 NTU Ready	100		
Ze	ro Calibration	Slope Calibration	4-20 mA Span
	80		
	60		
	40		
	20		
	20		
	09:00	09:30 10:00	10:30
		Date/Time	
		*Reading is	refreshed every 4 seconds
1	Refr	esh kate	, , , , , , , , , , , , , , , , , , , ,

To perform Zero Calibration, click on **Zero Calibration**. Then follow the instruction on how to calibrate, then click **Ok**.





To perform Slope Calibration, click on **Slope Calibration**. Then follow the instruction on how to calibrate, then click **Slope Calibration**.

uPyxis		-
vice Help	Information Calibration Diagnosis Upgrade Firmware	Py.
ST-730 ^{SN: 170032} ST-730 Turbidimeter 100 NTU Ready	Slope Calibration 100 NTU Zero Calibration Slope Calibration 4-20mA Span	
Follow Instruction	Slope Calibration Put the probe into a solution with known turbidity (1 to 100 NTU). Slope Calibrate Cancel	
	20	
	09:00 09:30 10:00 10:30	11:00

To perform 4-20 mA Span, click on **4-20 mA Span**. Then follow the instruction on how to calibrate, then click 4-20 mA Span.





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.

SuPyrds Device Help	Di	agnosis			Pyxis
Device List		Diagnosis U			
ST-730 ^{SN: 170032} ST-730 Turbidimeter 100 NTU Ready	(1) (2) (4) (5) (10) (12)	212 30 11 50 10 2915 1476	[mA] [6] [7] [8] [9] [11] [13]	11.98 3336 400 1476 2 2707 2	



6.8. Connecting to ST-731 via uPyxis Desktop App

When connected via WiFi, in the Discovered Devices box there will be the device product name (If no device product name in the Discovered Devices box, click **Refresh**). If device product name shows in the box, then click on **Connect to Device**. Once connected to the device on the main screen a picture of the device will appear on the top left corner. On the main screen you can set the information description for Device Name and Product Name, then click **Set** to save.

and the second se			Pyxis	
Device List	Quick Start Guide			
Click menu item "Device" to connect a device.	UPYOB / OUICK START GUIDE		^	
	Connect via WiFi ×		- 1	
During	Discovered Devices:	devices adapter (Part Number: MA-NEB) is needed.		
Device	ST500-WIFI-3D03	PC has a WIFi connection. Almost all laptop		
Refresh	Refresh	is don't have WIFI adapters.		
Refresh	*After connecting to the WiFi device, the internet connection may be disconnected.	e following list shows the supported devices by	rthe	
Connect to Device	Connect to Device Cancel			
9493440555555555555555555555555555555555	To connect to an intime device, a USB adapter (Part Number Please refer to the device instruction manual for more inform	MA-WB) is needed to connect to the inline der ation at http://www.pyxes-lab.com/support.html	Ace.	
	Looking for something not on the list? Please send an email	lo service@pyxis-lab.com	~	
uPyxis INTOI	rmation	- 1	- ×	
uPyxis INTO vice Help evice List Info	rmation		⊐ × Pyxis	
uPyris INTO vice Help evice List Info ST_731 SN: 170019	rmation mation Calibration Diagnosis Upgrade Fin Version:		⊐ × Pyxis	Device News
uPysis Info vice Help evice List Info ST-731 SN: 170019	rmation mation Calibration Diagnosis Upgrade Fin Version: Device Name (Nick name for the device)	- 15	□ × Pyxis	Device Name
uPyxis INTO vice Help evice List Info ST-731 SN: 170019 sT-731 Turbidimeter 12.24. NTU Ready	rmation Calibration Diagnosis Upgrade Fin Version: Device Name (Nick name for the device) Product Name (Name of the product that the devise)	mware 15 [Pyxis	Device Name Product Name
uPyvis Info vice Help evice List Info ST-731 SN: 170019 ST-731 Turbidimeter 12.24 NTU Ready	rmation Calibration Diagnosis Upgrade Fin Version: Device Name (Nick name for the device) Product Name (Name of the product that the device)	Timuaro 15 ce is measuring) Set	> × Pyxis	Device Name Product Name Set
uPyxis Info vice Help evice List Info ST-731 SN: 170019 ST-731 Turbidimeter 12.24 NTU Ready	rmation Calibration Diagnosis Upgrade Fin Version: Device Name (Nick name for the device) Product Name (Name of the product that the devis Modbus Address	the is measuring)	Pyxis	Device Name Product Name Set
UPyvis Info vice Help evice List Info ST-731 SN: 170019 ST-731 Turbidimeter 12.24 NTU Ready Picture of Device	mation Calibration Diagnosis Upgrade Fin Version: Device Name (Nick name for the device) Product Name (Name of the product that the devic Modbus Address	TWATO 15 ce is measuring) Set 28 Set	Pyxis	Device Name Product Name Set
Infor uPyxis Infor vice Help evice List Info ST-731 SN: 170019 ST-731 Turbidimeter 12.24 NTU Ready Picture of Device	rmation Calibration Diagnosis Upgrade Fin Version: Device Name (Nick name for the device) Product Name (Name of the product that the devi Modbus Address	- 15 ce is measuring)	Pyxis	Device Name Product Name Set
PuPysis Info vice Help evice List Info ST-731 SN: 170019 ST-731 Turbidimeter 12.24 NTU Ready Picture of Device	rmation Diagnosis Upgrade Fin Version: Device Name (Nick name for the device) Product Name (Name of the product that the devis Modbus Address	te is measuring)	Pyxis	Device Name Product Name Set
UPyvis Info vice Help evice List Info ST-731 SN: 170019 ST-731 Turbidimeter 12.24 NTU Ready Picture of Device	rmation Calibration Diagnosis Upgrade Fin Version: Device Name (Nick name for the device) Product Name (Name of the product that the devic Modbus Address	the is measuring)	Pyxis	Device Name Product Name Set
PuPyvis Info vice Help evice List Info ST-731 SN: 170019 ST-731 Turbidimeter 12.24 NTU Ready Picture of Device	rmation Calibration Diagnosis Upgrade Fin Version: Device Name (Nick name for the device) Product Name (Name of the product that the devic Modbus Address	- IS	Pyxis	Device Name Product Name Set
PuPysis Info vice Help evice List Info ST-731 SN: 170019 ST-731 Turbidimeter 12.24 NTU Ready Picture of Device	rmation Calibration Diagnosis Upgrade Fir Version: Device Name (Nick name for the device) Product Name (Name of the product that the devi Modbus Address	te is measuring)	Pyxis	Device Name Product Name Set
PuPysis Info vice Help evice List Info ST-731 SN: 170019 ST-731 Turbidimeter 12.24 NTU Ready Picture of Device	rmation Calibration Diagnosis Upgrade Fin Version: Device Name (Nick name for the device) Product Name (Name of the product that the devic Modbus Address	te is measuring)	Pyxis	Device Name Product Name Set



To calibrate the device, click on **Calibration**. On the Calibration screen there are three calibration tabs, **Zero Calibration**, **Slope Calibration**, and **4-20 mA Span**. The screen does also display the reading of the device. The reading refreshed rate is every 4 seconds.



To perform Zero Calibration, click on **Zero Calibration**. Then follow the instruction on how to calibrate, then click **Ok**.

🙆 uPyxis		- C	1 ×
Device Help			Pyxis
Device List	Information Calibration Diagnosis Upgrade Firmware		
ST-731 SN: 170019	Zero Calibration 12 25 MU		
ST-731 Turbidimeter			
12.25 NTU Ready	Zero Calibration Sope Calibration 4-20mA Span		
•	10.00		
	8.00 Zero Calibration ×		
	6.00 Put the probe into deionized water.		
Follow Instructions			
	4.00 OK Cancel		
	2.00		
	17:00 18:00 19:00 20:00 21:00 22 Date/Time	2:00	23:00
	*Reading is ref	reshed every	/ 4 seconds



To perform Slope Calibration, click on **Slope Calibration**. Then follow the instruction on how to calibrate, then click **Slope Calibration**.

le uPyxis	
Device Help Device List	Information Calibration Diagnosis Upgrade Firmware
ST-731 ^{SN: 170019} ST-731 Turbidimeter 12.25 NTU Ready	Slope Calibration 12.25 NTU Zero Calibration Slope Calibration 4-20mA Span
Follow Instructions	Slope Calibration Put the probe into a solution with known turbidity (1 - 10 NTU). Slope Calibrate Cancel
	2.00 17:00 18:00 19:00 20:00 21:00 22:00 23:00 Date/Time *Reading is refreshed every 4 second

To perform 4-20 mA Span, click on **4-20 mA Span**. Then follow the instruction on how to calibrate, then click 4-20 mA Span.

🙆 uPyxis		- 🗆 X
Device Help	Information Calibration Disanceir Ungrado Firmura	Pyxis
Device List ST-731 SN: 170019 ST-731 Turbidimeter 12.24 NTU Ready Follow Instructions	Information Calibration Diagnosis Upgrade Firmware 12.224 NTU 4 Zero Calibration Slope Calibration 4:20mA Span 10.00 0 0 4:20mA Span Please enter the concentration range which will be converted to 20mA. Max range is 10 NTU 9 Set 20mA Span Cancel 2.00 17:00 18:00 19:00 20:00 21:00 22:00 Date/Time "Reading"	-20 mA Span
	*Reading	is refreshed every 4 seconds



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.

SuPyxis Device Helo		D	iagnosi	S			-	D X
Device List	Information	Calibration	Diagnosis	Up	grade Firmware			
ST-731 SN: 170019			[1]	180	[mA]	20.00		
2 31-751			[2]	100	[6]	240		
ST-731 Turbidimeter			[3]	100	[7]	1886		
12.24 NTU Ready			[4]	32	[8]	1200		
			[5]	16	[9]	600		
			[10]	248	[11]	3914		
			[12]	1200	[13]	600		



6.9. Connecting to ST-735 via uPyxis Desktop App

When connected via WiFi, in the Discovered Devices box there will be the device product name (If no device product name in the Discovered Devices box, click **Refresh**). If device product name shows in the box, then click on **Connect to Device**. Once connected to the device on the main screen a picture of the device will appear on the top left corner. On the main screen you can set the information description for Device Name and Product Name, then click **Set** to save.

🔘 uPyxis		- 0	×
Device Help		Py	xis
Device List	Quick Start Guide		
Click menu item "Device" to connect a device.	UPYXE : QUICK START GUIDE		^
6	Connect via WiFi X		
	Discovered Devices:	as devices	
Device	ST500-WIFI-3D03	n adapter (Part Number: MA-NEB) is needed.	
Bonne		PC has a WIFI connection. Almost all laptop	
Refresh	Refresh	New More Thank, Still Canadiance.	
henesh	*After connecting to the WiFi device, the internet connection may be disconnected.	The following list shows the supported devices by the	
Connect to Davies	Connect to Device Cancel		
	connection berne		
	To connect to an inline device, a USB adapter (Part Num Please refer to the device instruction manual for more in	(ber: MA-WB) is needed to connect to the inline device. Iormation at http://www.pyxis-lab.com/support.html.	
	Looking for something not on the list? Please send an er	mail to service@pyxis-lab.com	~
📀 uPysis	Information	- D X	4
Device List	formation Calibration Diagnosis Up	grade firmware	
DOVIDAD SKRII	Weston	117	
BOXIDAB	Device Name (Nick name for the device)		Device Name
S1-735 Turbidmeter	Product Name (Name of the product that the	device is measuring	Product Name
V		Set	Sot
A			Jei
	Modbus Address	10	
Dicture of Device		Set	
PICTURE OF DEVICE			
BCIX1DA8(001EC0271DA8)			



To calibrate the device, click on **Calibration**. On the Calibration screen there are three calibration tabs, **Zero Calibration**, **Slope Calibration (Low Range)**, **Slope Calibration (Mid Range)**, **Slope Calibration** (**High Range**), and **4-20 mA Span**. The screen does also display the reading of the device. The reading refreshed rate is every 4 seconds.

🎯 uPyxis Device Help	Calibration	– 0 × Pyxis
Device List	Information Calibration Diagnosis Upgrade Firmware	
BOX6A82 SN: 8211	1 NTU	
1 NTU Ready	Zero Calibration Slope Calibration (Low-Range) Slope Calibration (Mid-Range) Slope Calibration (High-Range)	4-20mA Span
•	Zero Calibration	4-20 mA Span
	Slope Calibration (Low Range)	
	Slope Calibration (Mid Range)	
	Slope Calibration (High Range)	
	400	
	200	
		5000 0000
	3000 4000 3000 0000 1000 2000 3000 4000 Date/Time	30.00 00.00
BUX6A92/001520626A92)		*Reading is refreshed every 4 seconds



To perform Zero Calibration, click on **Zero Calibration**. Then follow the instruction on how to calibrate, then click **Ok**.



To perform Slope Calibration (Low Slope), click on **Slope Calibration (Low Range)**. Then follow the instruction on how to calibrate, then click **Slope Calibration**.





To perform Slope Calibration (Mid Slope), click on **Slope Calibration (Mid Range)**. Then follow the instruction on how to calibrate, then click **Slope Calibration**.



To perform Slope Calibration (High Slope), click on **Slope Calibration (High Range)**. Then follow the instruction on how to calibrate, then click **Slope Calibration**.





To perform 4-20 mA Span, click on **4-20 mA Span**. Then follow the instruction on how to calibrate, then click 4-20 mA Span.



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.

🎯 uPyxis		Diagnos	is			-	×
Device Help							Pyxis
Device List		Diagnosis					
ST-735 ^{SN: 8211} ST-735 Turbidimeter 98 NTU Ready		[1] [2] [3] [4] [5] [10] [12]	165 16 30 26 90 2477 3902	(mA) (6) (7) (8) (9) (11) (13)	4.16 3209 367 183 3268 495		



7. Communicating using Modbus RTU

The ST-730 series probe is configured as a Modbus slave device. In addition to the NTU value, 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.

8. Probe Cleaning and Maintenance

When used to control product dosing, it is suggested that the automation system be configured to provide backup to limit potential product overfeeds, for example by limiting pump size or duration, or by alarming if the pumping rate exceeds a desired maximum limit.

The ST-730 series probe is designed to be easily removed, inspected, and cleaned if required. It is suggested that the ST-730 series probe be checked for fouling and cleaned 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.

8.1. Methods to Cleaning ST-730 Series Probe

Any equipment in contact with industrial cooling systems is subject to many potential foulants and contaminants. Our inline probe 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 probe housing and the quartz optical sensor channel. Pyxis Lab Inline Probe Cleaning Solution Kit can be purchased at our online Estore/Catalog <u>https://pyxis-lab.com/product/st-500-probe-cleaning-kit/</u>.



8.2. ST-730 Series Inline Probe Cleaning Solution

Soak the lower half of the ST-730 series probe in 100 ml inline probe cleaning solution for 15 minutes. Rinse the ST-730 series probe with distilled water and then check for the flashing blue light inside the ST-730 series probe quartz tube. If the surface is not entirely clean, continue to soak the ST-730 series probe for an additional 15 minutes. Pyxis Lab Inline Probe Cleaning Solution can be purchased at our online Estore/Catalog <u>https://pyxis-lab.com/product/st-500-probe-cleaning-kit/</u>.



9. Other Common Troubleshooting Issues

If the ST-730 series probe output signal is not stable and fluctuates significantly, make an additional solution ground connection – connect the clear solution ground wire to a conductor that contacts the sample water electrically such as a brass pipe adjacent to the ST-730 series tee.

Carry out routine calibration check against a turbidity standard. If necessary, carry out the zero point and slope calibration.

10. Storage

Avoid long term storage at temperature over 100 °F. In an outdoor installation, properly shield the ST-730 series probe from direct sunlight and precipitation.