

# SP-350 Handheld Fluorometer Operation Manual



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## **TRADEMARKS PATENTS**

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## **STANDARD LIMITED WARRANTY**

Pyxis Lab warrants its products for defects in materials and workmanship. Pyxis Lab will, at its option, repair or replace instrument components that prove to be defective with new or remanufactured components (i.e., equivalent to new). The warranty set forth is exclusive and no other warranty, whether written or oral, is expressed or implied.

## **WARRANTY TERM**

The Pyxis warranty term is thirteen (13) months ex-works. In no event shall the standard limited warranty coverage extend beyond thirteen (13) months from original shipment date.

## **WARRANTY SERVICE**

Damaged or dysfunctional instruments may be returned to Pyxis for repair or replacement. In some instances, replacement instruments may be available for short duration loan or lease. Pyxis warrants that any labor services provided shall conform to the reasonable standards of technical competency and performance effective at the time of delivery. All service interventions are to be reviewed and authorized as correct and complete at the completion of the service by a customer representative or designate. Pyxis warrants these services for 30 days after the authorization and will correct any qualifying deficiency in labor provided that the labor service deficiency is exactly related to the originating event. No other remedy, other than the provision of labor services, may be applicable. Repair components (parts and materials), but not consumables, provided in the course of a repair, or purchased individually, are warranted for 90 days ex-works for materials and workmanship. In no event will the incorporation of a warranted repair component into an instrument extend the whole instrument's warranty beyond its original term.

## SHIPPING

A Repair Authorization Number (RA) must be obtained from by Pyxis Technical Support by filling out a request at <https://pyxis-lab.com/request-tech-support/> or by contacting us at [service@pyxis-lab.com](mailto:service@pyxis-lab.com) before any product can be returned to the factory. Pyxis will pay shipping charges to ship replacement or repaired products back to the customer. The customer shall pay shipping charges for returning products to Pyxis. Any product returned to the factory without an RA number will be returned to the customer.

### 1. Specifications

- Fluorescence Excitation Wavelength: 365nm LED
- Fluorescence emission wavelength: 410 nm
- Wavelength Accuracy:  $\pm 1$  nm
- Fluorescence Measurement Range: 1-300 ppb
- Fluorescence Reproducibility: 1 ppb PTSA (3)
- Fluorescence detection limit: 1 ppb
- Battery: 4- AA alkaline batteries
- Typical Battery Life: 10,000 readings
- Display: 320\*240 TFT-LCD, visible under direct sunlight
- Dimension: L160 W74 H33(mm)
- Weight: 310 g (without battery)
- Temperature Range: 40 to 106 °F (4 to 41 °C)
- Humidity: 85% to 106 °F (41 °C)
- Environmental: IP67, dustproof and waterproof

#### 1.1. Unpacking

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 items listed on the packing slip are included. If any items are missing or damaged, please contact Pyxis Customer Service at [service@pyxis-lab.com](mailto:service@pyxis-lab.com).

#### 1.2. Standard Accessories

- 4- alkaline batteries

### 1.3. Sample Compartment

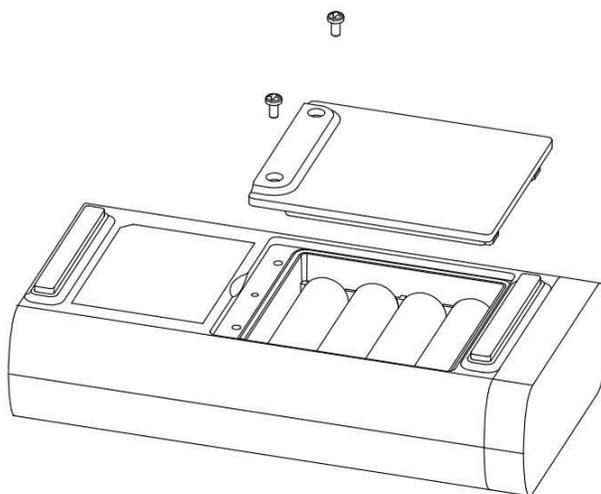
The sample compartment (cup) should be kept clean. A small amount foreign material could significantly affect turbidity and fluorescence measurement results. Use a soft cloth or lint free paper tissue to clean sample vial compartment periodically. Remove debris, scale, and deposit promptly. On a monthly basis or more frequent as desired we recommend conducting a proper cleaning of sample vial compartment using Pyxis **SER-02** Handheld Cleaner, as specified in Section 4 of this manual.

## 2. Start SP-350

### 2.1. Battery Installation

The SP-350 is powered by a 4- AA alkaline batteries. Do not use rechargeable nickel cadmium (NiCad) or lithium batteries. Typically, the 4- alkaline batteries lasts for ten months and enables about 10,000 measurements. When the battery capacity is critically low, the SP-350 will display a LOW BATTERY warning for 5 seconds and then automatically turn off. The SP-350 battery compartment is on the back side of the instrument. Insert a small pad underneath the screen area to make the back-surface level when the instrument is turned upside down. Install battery as follows:

- Remove the battery compartment cover by loosening the two screws.
- Remove old batteries and dispose of properly.
- Following the positive and negative terminal signs in the compartment bottom, snap four new AA alkaline batteries firmly into the battery holder.
- Replace the battery compartment cover, making sure that the sealing O-ring is lying flat on the battery holder. **NOTE:** Failure to properly seat the O-ring may result in water damage to the meter.
- Fasten the two screws.



## 2.2 Description of the Keys

The SP-350 has three keys, the left (<), right (>) and OK keys are used to launch an action indicated on the screen directly above the keys. Please note that the screen is not a touch screen. The labels above the keys indicate the function associated with the keys and can change according to the screen modes.

### 2.3. Powering on SP-350

To turn on the SP-350, press and hold on the **OK** key for 3 seconds, and release the **OK** key when the LCD is light. You can navigate the main page menu and launch an operation by pressing on an icon. If battery voltage is too low for the instrument to work properly, Pyxis SP-350 will show a low battery warning message for 5 seconds and turn off automatically. If this happens, replace all four batteries.

### 2.4. Main Screen

Pyxis SP-350 provides intuitive icon menu-assisted user operations. A brief description of each feature group is given as Figure 1.

- **PCal** - Calibration Process for PTSA
- **System** – Information & Diagnosis Data

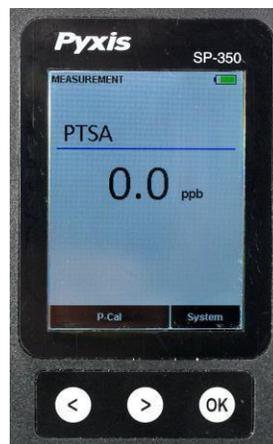


Figure 1: Main Screen

### 2.5. Powering off SP-350

To turn off the SP-350, press and hold the **OK** key. Release the **OK** key when the LCD display turns off (after about 5 seconds).

## 2.6. Auto Power off

SP-350 automatically turns itself off after 20 seconds with no-key activity. Single press the **OK** key will wake up the instrument and return to the main screen.

## 3. PTSA Measurement

### 3.1. PTSA Measurement

- Pour water sample into the sample cup. If the SP-350 is turned off, press the OK button to power on.
- SP-350 will start to measure the PTSA concentration in the sample immediately.
- SP-350 will display the PTSA concentration in ppb as PTSA.
- A blue background will illuminate when the sample has stabilized and is locked-in for value to be recorded.

During the fluorescence measurement to determine the PTSA concentration, SP-350 checks the sample turbidity. If the PTSA sample turbidity value detected is greater than 40 NTU, Pyxis SP-350 will display a warning. For best results, the sample should be filtered if turbidity exceeds 40 NTU.

Sample color causes a lower PTSA concentration to be measured. SP-350 automatically compensates for sample color. If the sample color is too intense, SP-350 will display a warning.

In order to obtain accurate test results, water samples should be filled to the top rim of the sample chamber. Use caution in filling the sample chamber to minimize air bubbles. Many users prefer to use a disposable pipette or syringe.

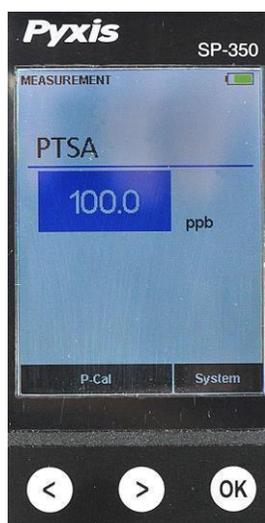


Figure 2: PTSA Reading

### 3.2. PTSA Calibration

Deionized water (DI) as the blank calibration solution and the 100 ppb (200 ppb or 300 ppb) PTSA calibration standard solution are needed.

- Turning on SP-350, Rinse sample compartment with DI water. Fill sample cell with DI water.
- Press P-Cal labeled key (<) to launch the calibration page.
- Follow the message prompts, Press **Zero** labeled key (<) to set the zero point.
- Follow the message prompts, Press **Cycle** labeled key (<), Select injected PTSA concentration standard solution, you can select a value of 100ppb, 200ppb, 300ppb, according to the selected value, injected PTSA concentration standard solution to sample compartment and Press **Slope** labeled key (>).
- If calibration succeeds, a message will display in red "**Calibration Succeed**". After successful calibration, press and hold **OK** key for 3 seconds (labeled Calibration) to return to the basic read (measurement) screen.
- If calibration fails, a message will display in red "**Slope Calibration Failed**".

If calibration fails, the following should be checked.

- Determine if the DI blank has been contaminated with PTSA or other false background.
- The sample compartment is fouled with deposits, debris or other materials and should be properly cleaned with Pyxis SER-02 Handheld Cleaning Solution.

#### 4. How to Clean SP-350

Through normal use with industrial waters, the sample compartment will develop inorganic deposits/film over time. For optimum device performance, Pyxis recommends chemically cleaning the sample compartment on a monthly basis or more frequently depending on severity of waters inorganic foulant levels.

Soak the sample compartment of the SP-350 meter with handheld cleaning solution for 30 minutes. Rinse the SP-350 sampling cup with distilled water and gently wipe down sampling cup with Q-tip, rinse with distilled water once again, and then check for the flashing blue light inside the sampling cup of the SP-350 meter. If the surface is not entirely clean, continue to soak the SP-350 meter sampling cup for an additional 30 minutes. Pyxis Lab Handheld Cleaning Solution can be purchased at our online Estore/Catalog: <https://pyxis-lab.com/product/handheld-device-cleaning-kit/>.

Video on how to clean handheld meters: <https://www.youtube.com/watch?v=OJDnCOjw7-M>.



#### 5. Storage

Avoid long term storage at temperature over 100 °F.