

SP-350 Handheld Fluorometer Operation Manual



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TRADEMARKS PATENTS

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CONFIDENTIALITY

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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 the Technical Support (service@pyxis-lab.com) before any product can be returned to the factory. Pyxis will pay freight charges to ship replacement or repaired products to the customer. The customer shall pay freight 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: ± 1 nm
- Fluorescence Measurement Range: 1-300 ppb
- Fluorescence Reproducibility: 1 ppb PTSA (3)
- Fluorescence detection limit: 1 ppb
- Battery: 9V alkaline battery
- Typical Battery Life: 3200 readings(480mAh battery)
- Display: 320*240 TFT-LCD, visible under direct sunlight
- Dimension: L160 W74 H33(mm)
- Weight: (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.

1.2. Standard Accessories

- 9V alkaline battery

1.3. Sampling Vial Compartment

The sample vial compartment 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.

1.4. Light Shield Cover

The light shield cover should be in the closed position during storage, transportation, and measurements. When turned on, Pyxis SP-350 carries out self-diagnosis including checking the performance of a variety of optical devices. The light shield door shall be at the closed position to shield interference from ambient light during self-diagnosis.

2. Start SP-350

2.1. Battery Installation

The SP-350 is powered by a 9-volt alkaline battery. Do not use rechargeable nickel cadmium (NiCad) or lithium batteries. A typical 9V battery lasts for two months and enables about 3000 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 two screws.
- Snap the 9 volt alkaline battery firmly into the battery holder.
- Replace the battery compartment cover, making sure that the sealing O-ring is lying flat on the battery holder. To prevent the SP-350 from accidentally being turned on due to vibration, please firmly tighten 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.

- Calibration Icon_ Calibration routine for PTSA
- Info Icon _Diagnosis

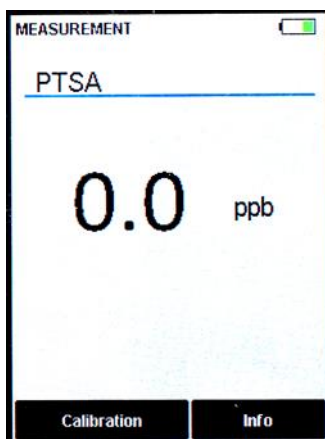


Figure 1: Main Screen

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

- The water sample is injected into the flow cell, close the shielding cover. If the SP-350 is turned off, press the OK button.
- SP-350 will start to measure the PTSA concentration in the sample.
- SP-350 will display the PTSA concentration in ppb as PTSA.

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.

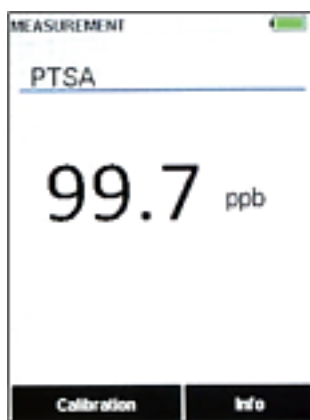


Figure 2: PTSA Reading

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 cell with DI water. Fill sample cell with DI water.
- Close the light shield. 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 room 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.

- The DI blank is being contaminated.
- The light shield cover is not in the closing position.
- The sample compartment is blocked with debris, water, or other materials.

4. How to Clean SP-350

Soak the sampling cup of the SP-350 meter with handheld cleaning solution for 30 minutes. Rinse the SP-350 sampling cup with distilled water, 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.