

Little Dipper™

User's Manual



January 07, 2023

P/N: 998-2853

Revision A

TURNER DESIGNS

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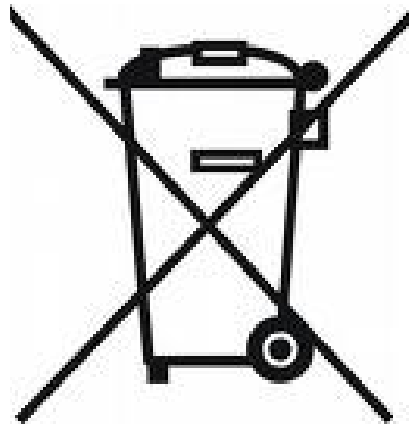
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1 Before Use



1.1 Disposal

WASTE ELECTRICAL AND ELECTRONIC EQUIPMENT (WEEE) DIRECTIVE

Turner Designs is in the business of designing and selling products that benefit the well-being of our environment. Accordingly, we are concerned with preserving the surroundings wherever our instruments are used and happy to work with customers by complying with the WEEE Directive to reduce the environmental impact resulting from the use of our products.

WEEE Return Process:

To arrange the return of an end-of-life product, proceed as follows:

If you purchased your instrument through a Turner Designs Distributor, please contact your local representative. They will instruct you where to return the end-of-life product.

If you purchased your instrument directly from Turner Designs please contact Turner Designs Customer Service

By Phone: 1 (877) 316-8049

By Email: Customer Service at support@turnerdesigns.com

Turner Designs will provide a WEEE RMA Number, a Shipping Account Number, and a Ship to Address. Package and ship the product back to Turner Designs.

The product will be dealt with per Turner Designs' end-of-life recycling program in an environmentally friendly way.



1.2 Specifications

Little Dipper	
Linear range	0-199 ppb
Resolution	1 ppb
Power	2 AA batteries, standard or rechargeable
Auto Power Off	After 1 minute of inactivity
Calibration Type	Single point
Light source	LED
Detector	Photodiode
Case	Meets IP67 Standard; dustproof/waterproof
Temperature	41 - 104 °F, (5 - 40 °C)
Size	8.9 x 2 x 1.75 in. (22.6 x 5.1 x 4.5 cm)
Weight	4.3 oz, (120 g)

2 Initial Information

2.1 Description

The Little Dipper is a lightweight, handheld fluorometer ideal for field use. Its small size makes it perfect for the user who needs quick measurements away from the laboratory.

2.2 Inspection and Setup

- Inspection

Upon receiving your instrument, please inspect everything carefully and make sure all accessories are present. Contact your local distributor for help if there are difficulties. All shipments include:

- The Little Dipper™
- The User's Manual and Quick Start Guide on USB Flash Drive
- Laminated Quick Start Guide
- 2 - AA batteries
- Shade Cap P/N 023-2850
- Wrist strap P/N 030-8500-1

- Setup

Before the Little Dipper can be used, the supplied batteries must be installed.

1. On the back side of the instrument, remove the battery panel by loosening the screws and then gently remove the back panel.
2. Install the 2 - AA batteries and verify the batteries are positioned correctly.
3. Replace the battery panel and press it down into position.
4. Hold the battery panel down in place and gently tighten the screws until it is snug. Do not over tighten the screws.



2.3 General Information, Precautions and Cleaning

- **The Little Dipper should NOT come into contact with any organic solvents or strong acids and bases.**
- There are three messages that will display during use of the Little Dipper, “td” for Turner Designs, “Lb” for Low Battery, and numerical readings from 0-199.
- Rinsing with fresh water and drying the instrument thoroughly with a non-abrasive cloth after use is recommended.
- Visual inspection of the optical face for fouling should be done on a regular basis.
- To inspect the optical face, remove the cap:
- If there is any noticeable fouling, use a soft bristle brush or non-abrasive cloth and soapy water to clean the optical window. Rinse thoroughly.
- **Do not expose the Little Dipper to temperatures outside the specified range of 5 to 40 °C or damage may occur to the unit that will not be covered under warranty.**
- **Do not use instrument under water. Sensor works best when partially submerged below the Stop line.**



3 Instrument Operation and Calibration

3.1 Instrument Power Up

To turn on the Little Dipper, press the power button.



3.2 Sample Analysis

1. Insert the sensor in the sample at an angle with the cap fully submerged.
2. Shake gently to make sure all bubbles are purged from the cap. Then vertically straighten the device.
3. Press the READ button.

3.3 Calibration Procedure

Note: Little Dipper is calibrated when shipped. Only re-calibrate if unit does not read $100 \pm 3\%$ for the appropriate Standard Solution. Use P/N 10-608 (PTSA 100 ppb).



Calibrating 100

1. Prepare a 500 mL darkened beaker with the standard solution.
2. To calibrate, press and hold the READ button while unit is off. **If taking measurements with the cap, ensure cap is still on the Little Dipper while doing all calibrations. If you choose to measure without the cap, then have calibrations with the cap off.**
3. While holding the READ button, press and hold the Power button until 100 appears on the screen. Release both buttons.
4. Insert the sensor in the standard at an angle with the cap fully submerged, shake gently to make sure all bubbles are purged from the cap, straighten sensor vertically from an angle, and press the READ button.
5. The display will flash “td” four times and then the unit will automatically turn off.

At this point the Little Dipper is calibrated. You can confirm the calibration by turning the unit on and pressing the READ button while the unit is in the standard solution. Readings should be $100 \pm 3\%$.

Calibrating 0

6. Repeat Step 2 from Calibration 100 to begin calibration for 0.
7. Repeat Step 3 of continuing to hold both buttons, the 100 will appear and after 15 seconds, the 0 will now display. Release both buttons.
8. Hold sensor away from yourself at least 4 feet away from any reflective surfaces, direct sunlight, or the ground and press the READ button.
9. The display will flash “td” four times and then the unit will automatically turn off.

You can confirm the calibration by turning the unit on and pressing the READ button while the unit is facing away from reflective surfaces and the ground. Display should show 0.

4 Warranty

4.1 Terms

Turner Designs warrants the Little Dipper and accessories to be free from defects in materials and workmanship under normal use and service for a period of 12 months from the date of shipment from Turner Designs, with the following restrictions:

- Turner Designs is not responsible for replacing parts damaged by accident or neglect. Damage from corrosion is not covered. Damage caused by customer modification of the instrument is not covered. Instrument must be used as described in the User's Manual.
- This warranty covers only Turner Designs products and is not extended to equipment used with our products. We are not responsible for incidental or consequential damages, except in those states where this limitation is not allowed. This warranty gives you specific legal rights and you may have other rights which vary from state to state.
- Damage incurred in shipping is not covered.

4.2 Warranty Service

To obtain service during the warranty period, the owner shall take the following steps:

1. Write, email, or call the Turner Designs Technical Support department and describe as precisely as possible the nature of the problem.
Phone: 1 (877) 316-8049
Email: support@turnerdesigns.com
2. Carry out any adjustments or tests as suggested by the Technical Support Department.
3. If proper performance is not obtained you will be issued a Return Authorization number (RMA). Package the unit, write the RMA number on the outside of the shipping carton, and ship the instrument, prepaid, to Turner Designs. If the failure is covered under the warranty terms, the instrument will be repaired and returned free of charge, for all customers in the contiguous continental United States.

For customers outside of the contiguous continental United States who purchased equipment from one of our authorized distributors, contact the distributor. If you purchased directly, contact us. We will repair the instrument at no charge. Customer pays for shipping duties and documentation to Turner Designs. Turner Designs pays for return shipment (custom duties, taxes and fees are the responsibility of the customer).

4.3 Out of Warranty Service

Follow steps for Warranty Service as listed above. If our Technical Support department can assist you by phone or correspondence, we will be glad to, at no charge. Repair service will be billed on a fixed price basis, plus any applicable duties and/or taxes. Shipment to Turner Designs should be prepaid. Your bill will include return shipment freight charges.

Address for Shipment:

Turner Designs
1995 N. 1st Street
San Jose, CA 95112