



DipTip™

*Miniature Transmission Dip Probe*

www.wpiinc.com

## INSTRUCTION MANUAL

Serial No. \_\_\_\_\_

103102



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**World Precision Instruments**



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## Warranty

WPI (World Precision Instruments, Inc.) warrants to the original purchaser that this equipment, including its components and parts, shall be free from defects in material and workmanship for a period of one year\* from the date of receipt. WPI's obligation under this warranty shall be limited to repair or replacement, at WPI's option, of the equipment or defective components or parts upon receipt thereof f.o.b. WPI, Sarasota, Florida U.S.A. Return of a repaired instrument shall be f.o.b. Sarasota.

The above warranty is contingent upon normal usage and does not cover products which have been modified without WPI's approval or which have been subjected to unusual physical or electrical stress or on which the original identification marks have been removed or altered. The above warranty will not apply if adjustment, repair or parts replacement is required because of accident, neglect, misuse, failure of electric power, air conditioning, humidity control, or causes other than normal and ordinary usage.

To the extent that any of its equipment is furnished by a manufacturer other than WPI, the foregoing warranty shall be applicable only to the extent of the warranty furnished by such other manufacturer. This warranty will not apply to appearance terms, such as knobs, handles, dials or the like.

WPI makes no warranty of any kind, express or implied or statutory, including without limitation any warranties of merchantability and/or fitness for a particular purpose. WPI shall not be liable for any damages, whether direct, indirect, special or consequential arising from a failure of this product to operate in the manner desired by the user. WPI shall not be liable for any damage to data or property that may be caused directly or indirectly by use of this product.

## Claims and Returns

- Inspect all shipments upon receipt. Missing cartons or obvious damage to cartons should be noted on the delivery receipt before signing. Concealed loss or damage should be reported at once to the carrier and an inspection requested. All claims for shortage or damage must be made within 10 days after receipt of shipment. Claims for lost shipments must be made within 30 days of invoice or other notification of shipment. Please save damaged or pilfered cartons until claim settles. In some instances, photographic documentation may be required. Some items are time sensitive; WPI assumes no extended warranty or any liability for use beyond the date specified on the container.
- WPI cannot be held responsible for items damaged in shipment en route to us. Please enclose merchandise in its original shipping container to avoid damage from handling. We recommend that you insure merchandise when shipping. The customer is responsible for paying shipping expenses including adequate insurance on all items returned.
- Do not return any goods to WPI without obtaining prior approval and instructions (RMA#) from our returns department. Goods returned unauthorized or by collect freight may be refused. The RMA# must be clearly displayed on the outside of the box, or the package will not be accepted. Please contact the RMA department for a request form.
- Goods returned for repair must be reasonably clean and free of hazardous materials.
- A handling fee is charged for goods returned for exchange or credit. This fee may add up to 25% of the sale price depending on the condition of the item. Goods ordered in error are also subject to the handling fee.
- Equipment which was built as a special order cannot be returned.
- Always refer to the RMA# when contacting WPI to obtain a status of your returned item.
- For any other issues regarding a claim or return, please contact the RMA department.

**Warning: This equipment is not designed or intended for use on humans.**

*\* Electrodes, batteries and other consumable parts are warranted for 30 days only from the date on which the customer receives these items.*

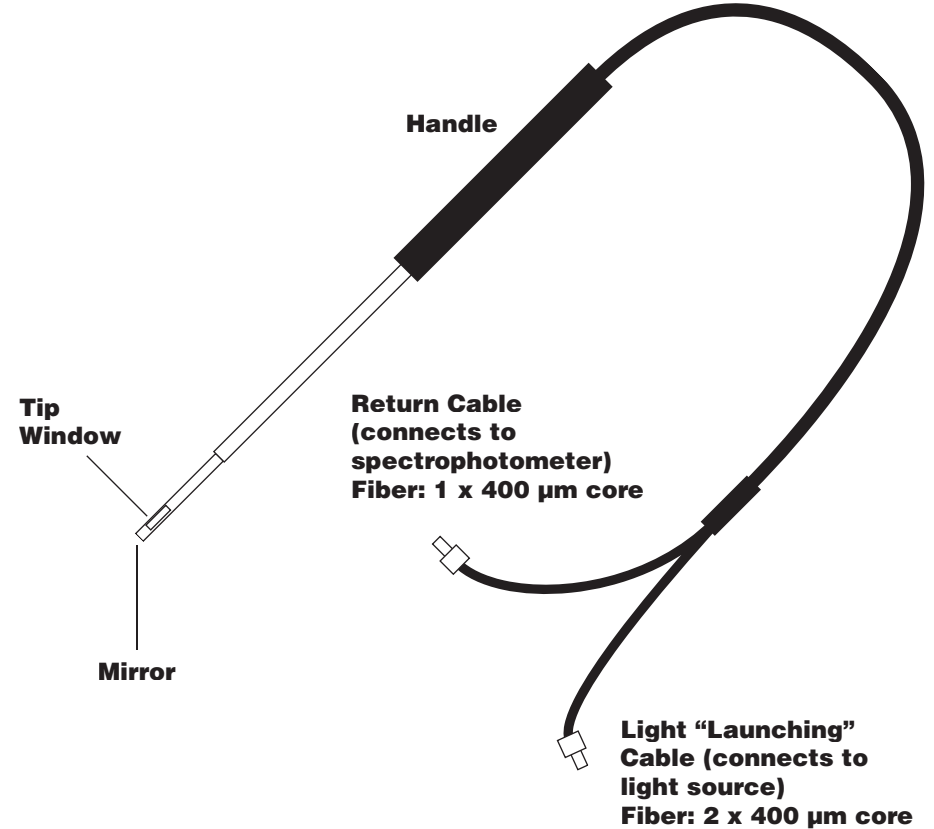
Rinse the tip of the probe in distilled water and cleaning solution (or just distilled water) between one sample solution and the next. This helps to reduce contamination. Use safe, appropriate cleaning solutions such as distilled water, detergent, alcohol, acetone or properly diluted WPI Cleaning Solution Concentrate (catalog #15807).

## Protecting the tip

1. DipTip can be used in almost any organic and inorganic solvent except HF and strong acids. HF will dissolve the quartz fiber, and strong acids will dissolve the stainless steel body. Any liquid that can damage quartz or stainless steel should be avoided.
2. Dropping, hitting or bumping can cause permanent damage to DipTip. The window area is fragile and the mirror can be knocked out of alignment. When DipTip is not in use, always protect the tip with the plastic guard provided.
3. Always keep the fiber optic connectors covered with protective sleeves when they are not connected.
4. Do not bend sharply or drop heavy or sharp objects on the fiber optic cable. Damaging the optical fibers will cause loss of light transmission.
5. Keep DipTip away from hot objects which could melt the handle or the fiber-optic cable.
6. DipTip is a delicate optical device and should be handled carefully. Damage occurring through abuse or improper usage will not be covered by WPI's warranty.

## INTRODUCTION

DipTip™ is a fiber-optic sampling device which, when connected to a UV/Vis spectrophotometer, can perform a wide range spectral analyses on fluid samples of less than 20 microliters. Because of its small tip diameter (1.5 mm — the size of a 17-gauge needle) DipTip™ fits into all micro centrifuge tubes, making it a very useful tool for measurement of DNA and protein samples. Combined with other WPI devices (UV and/or visible light sources, spectrometers, spectrophotometer systems), DipTip allows you to build inexpensive custom systems to match your application.



## DIPTIP SPECIFICATIONS

	DIP-UV	DIP-UV5	DIP-UV2
Tip Diameter.....	1.5 mm.....	1.5 mm.....	1.5 mm
Light Path Length.....	10 mm.....	5 mm.....	2 mm
Distance from tip to upper edge of sample window.....	7 mm.....	7 mm.....	7 mm
Total Length (including handle).....	180 mm.....	180 mm.....	180 mm
Fiber Length (from connector to tip).....	1.5 m.....	1.5 m.....	1.5 m
Fiber Optic Connectors.....	SMA.....	SMA.....	SMA
Launch Fiber.....	2 x 400 µm.....	2 x 400 µm.....	2 x 400 µm
Return Fiber.....	1 x 400 µm.....	1 x 400 µm.....	1 x 400 µm
Minimum Fluid Sample Volume.....	20 µl.....	20 µl.....	20 µl

## HOW TO USE THE DIPTIP

### Connections

DipTip has two fiber-optic cables. Launch and return fibers connect to the light output and detector input of a fiber optic spectrophotometer such as WPI's Tidas II. Alternatively, the launch fiber connects to a light source (e.g., WPI's **FO-6000**, **D2H** or **D2Lite**) and the return fiber to a detector (e.g., WPI's **Tidas-I**, **S2000** or SpectraUSB).

### Wetting the Tip

DipTip uses a mirror to return the light and it is important to keep the mirror surface clean. When DipTip is stored dry, a thin film will usually be deposited on the mirror by the liquid left in the tip from the previous usage. It is important to clean the tip by rinsing it in distilled water and keeping it in the water between measurements.

### Taking a Reference

Since DipTip is normally used with a single beam spectrophotometer, it is important to take a reference (or blank) measurement before measuring the sample. The reference measurement should be taken while the tip is in a reference solution that is as similar as possible to the sample solution — that is, it should have same salt content so that its refractive index is the same, and it should have the same concentration of buffers so that the UV absorbency of the buffer molecule can be canceled.

### Taking the Measurement

Measurements are taken while the tip is immersed in the sample solution. It is imperative to prevent air bubbles from being trapped in the small window of the tip since bubbles can completely block the light transmission and create invalid results. (A significant base-line shift up may indicate an air bubble interfering with the light transmission.) Inserting the tip slowly and smoothly into the sample solution will allow the air to escape from the window. Repeat several times if necessary. Blotting the tip with a lint-free tissue such as Kimwipes and reinserting it into the solution might also help. Cleaning the tip in detergent and thoroughly rinsing before use helps relieve surface tension at the window, reducing the formation of bubbles.

### Cleaning the Tip

After sampling, remove the remaining sample from the tip with a clean wipe to help reduce contamination of your cleaning solutions. The most effective method for cleaning the probe tip is to use an ultrasonic cleaning bath such as WPI's Pulsating Ultrasonic Cleaner (catalog #PUC) to remove residue that does not rinse out easily.