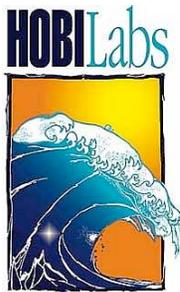


# Scalar Irradiance Probe

## User's Guide



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**Hydro-Optics, Biology & Instrumentation  
Laboratories**

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## Overview

The HOBI Labs scalar irradiance probe collects light from all directions through a PTFE (Teflon) sphere, and transmits the light through a 1 mm diameter fiber optic to an SMA female connector. Any standard fiber-optic patch cable with a male SMA connector can be attached to the probe.

The spherical collector provides the most uniform possible angular response, and the PTFE material has low absorption to provide the best sensitivity.

The light-collecting sphere and the 25-cm stem of the probe are waterproof, making the probe ideal for immersed measurements in laboratory experiments, including under salt water.



## General Handling

Handle the probe with care. The core of the stem is a metal tube, but it can be easily bent with hand pressure. If clamping the probe into an apparatus, avoid applying much pressure to the stem. Instead, clamp it around the thicker, reinforced portion near the fiber optic connector.

The PTFE sphere is relatively soft and easily scratched, however scratches and other small defects will not have any significant effect on its optical transmission.

Do not pull or twist the sphere. Handle the probe only by the stem.

Keep the SMA connector covered when not in use.

## Immersion

The probe may be completely immersed in water, including salt water, except for the exposed metal portion of the fiber optic connector. The fiber connection is *not* water-proof.

## Connecting to the Probe

Connect to the probe with any standard SMA fiber optic patch cable. Light is carried through the center of the probe by an optical fiber with a diameter of 1 mm. The stability of the connection may depend on the size, alignment and construction of the fiber cable you connect. For best stability, use a wrench to tighten the connection, but apply torque only to the hexagonal nut on the probe's SMA connector — not to the stem or light-collection sphere!

Before connecting a patch cable to the probe, use pressurized air to blow any dust from the

## Cleaning

The probe, and especially the PTFE sphere, is very resistant to contamination and typically requires only gentle cleaning with detergent, or with mild optical cleaning solutions. **Do not use acetone.**

If water gets into the SMA connector, blow it out with compressed air and let the probe dry in warm air. If salt water or other corrosive or dirty contamination enters the SMA connector, rinse it thoroughly with de-ionized water, then blow out the rinse water with compressed air and let it dry thoroughly.

## Specifications

Sphere diameter: 16 mm

Length: 275 mm from tip of sphere to base of SMA connector

Internal fiber: 1000  $\mu\text{m}$  core, 0.37 NA

Fiber Optic connection: SMA female