# Ø50 mm Integrating Sphere, 4 Input Ports

**2P4/M**



## Description

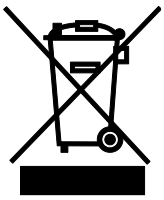
The 2P4/M Integrating Sphere features four input ports and one detector (output) port. The Ø11.5 mm input ports and the Ø3 mm output port have SM05 internal threads for mounting of fiber adapters or detectors of the SM05PDx Series, respectively. The detector port has been specially arranged in order to prevent direct irradiation of the detector even under large divergent input beams.

The 2P4/M can be mounted on a post using the M4 mounting tap on the bottom of the device. For mounting a 30 mm cage system, the 2P4/M features four 4-40 threads on all 6 sides. The integrating sphere can be opened for the insertion of optical devices or for cleaning. To do so, gently blow off any debris using compressed air.

The 2P4/M Integrating Sphere is a general purpose sphere manufactured from PTFE high reflectance bulk material. This makes the 2P4/M sphere resistant to heat, humidity, and high levels of radiation, as well as covering a large wavelength range.

## Specifications

| 2P4/M | |
|---|---|
| **Inner Sphere Diameter** | 50 mm (1.96") |
| **Input Ports** | 4 Ports, 0°, 90°, 180° and on Top |
| **Input Port Diameter** | Ø11.5 mm (0.45") |
| **Detector Port** | Ø3 mm with SM05 Thread |
| **Typical Reflectance** | >94% @ 250 nm - 2500 nm<br>~99% @ 350 nm - 1500 nm |
| **Wavelength Range** | 250 nm to 2500 nm |
| **Operating Temperature** | -20 °C to 60 °C |
| **Operating Humidity** | 5% to 95% |
| **Laser Damage Threshold** | Pulsed: 7 J/cm$^2$<br>CW: 2 kW/cm$^2$ |
| **Weight** | 350 g |
| **Dimensions (L x W x H)** | 63.0 mm x 63.0 mm x 77.0 mm<br>(2.48" x 2.48" x 3.03") |



## Calibration

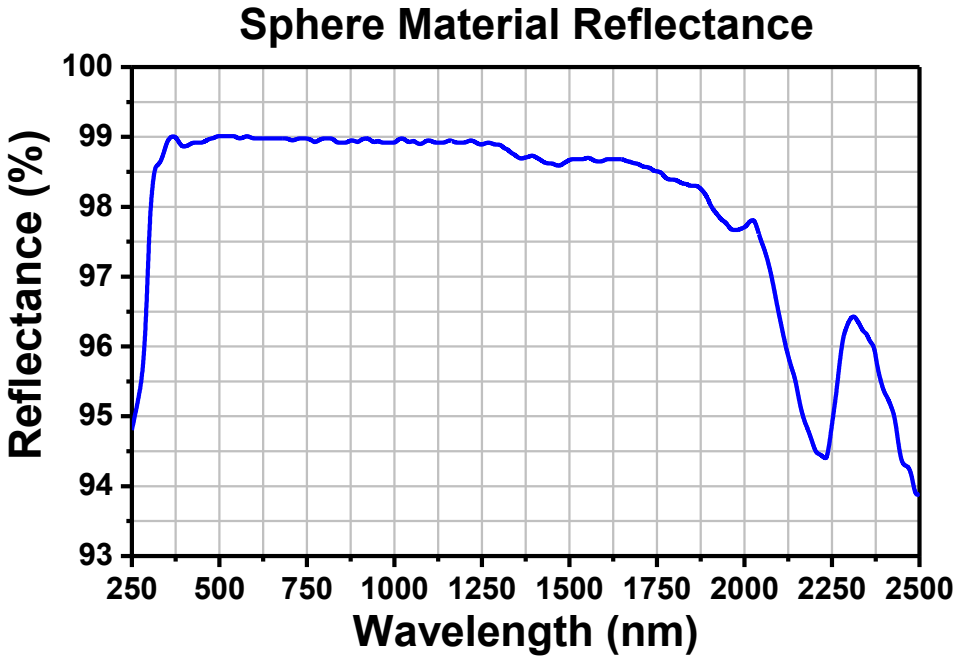
Upon request, Thorlabs offers calibration of each 2P4/M Integrating Sphere with the individual sensors of choice. Thorlabs then provides NIST and/or PTB-traceable certificates of calibration.

## Available Accessories

The following Thorlabs accessories for the 2P3(/M) or 2P4(/M) integrating spheres are available through the Thorlabs website.

| | |
|---|---|
| 2P10 | Replacement Input Port Plug for Ø50 mm Integrating Sphere |
| 2P-FC | SM05 Threaded FC/PC Adapter for Ø50 mm Integrating Sphere |
| 2P-SMA | SM05 Threaded SMA Fiber Adapter for Ø50 mm Integrating Sphere |
| 2P-25 | SM05-Threaded Ø2.5 mm Ferrule Adapter for Ø50 mm Integrating Sphere |
| 2P-DA1 | Slim Dovetail Adapter for Ø50 mm Integrating Sphere |
| 2P-DA2 | Dovetail Adapter with Filter Holder for Ø50 mm Integrating Sphere |
| 2P-DAF | Additional Filter Holder Insert for 2P-DA2 |

## Typical Performance Plot




## Maintenance and Safety

There are no serviceable parts in the 2P4/M Integrating Sphere. The housing may be cleaned by wiping with a soft damp cloth. The integrating sphere inner surface cannot be cleaned; do not touch this surface. Gently blow off any debris using compressed air. Please do not open/close the housing at temperatures >25 °C. Due to temperature-dependent expansion of the PTFE, the housing can only be closed/opened with difficulty or not at all. For easier handling, it would be possible to place the housing in the refrigerator for 5-10 min.

If you suspect there is a problem with your 2P4/M Integrating Sphere, please contact Thorlabs and an engineer will be happy to assist you.