Light Measurement Integrating Sphere

4P3

Description

The 4P3 Integrating Sphere features three modular faces, which are by default fitted with one 4P11 Ø1" port insert and two 4P10 port plug inserts. The face opposite the 4P11 insert is closed to reduce seams for optimal reflectance properties, while the two remaining square faces are closed with tapped plates to be mounted to the included rail system. The 4P3 has two additional Ø5 mm fixed ports on triangular faces to attach detectors, spectrometers, or light sources. All ports are SM1 threaded.

The 4P3 Integrating Sphere is a general purpose sphere manufactured from PTFE high reflectance bulk material. This makes the 4P3 sphere resistant to heat, humidity and high levels of radiation, as well as covering a large wavelength range.
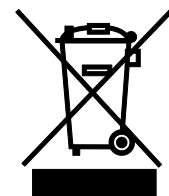
Possible applications for the 4P3 Integrating Sphere include light measurement of lasers and LEDs, or camera calibration using the 4P3 as homogeneous illumination.

A custom integrating sphere with three modular faces (inserts chosen by the user) and up to eight fixed Ø5 mm ports is available on our website as item # 4P3-CUSTOM:
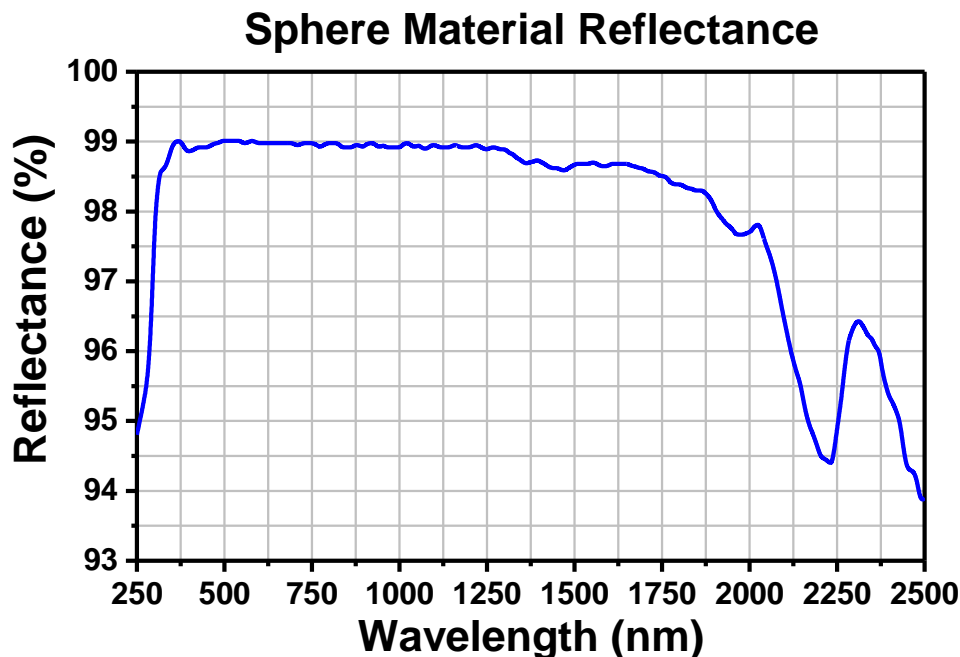https://www.thorlabs.com/newgrouppage9.cfm?objectgroup_id=13414#13416

Specifications

4P3	
Inner Sphere Diameter	100 mm (3.94")
# of Modular Faces	3
Interchangeable Port Inserts	Ø1" Port (4P11) Two Port Plugs (4P10)
Fixed Ports	Two Ø5 mm Ports (SM1 Threaded)
Maximum Reflectance	>95% @ 250 nm – 2500 nm >99% @ 350 nm – 1500 nm
Wavelength Range	250 nm to 2500 nm
Operating Temperature	-20 °C to 60 °C
Operating Humidity	5% - 95%
Laser Damage Threshold	Pulsed: 7 J/cm^2 CW: 10 W/cm^2
Weight of Unmounted Sphere	2460 g
Dimensions of Unmounted Sphere (L x W x H)	134.2 mm x 150.0 mm x 134.2 mm (5.28" x 5.91" x 5.28")
Weight of Sphere Mounted to Rail System Stand	3340 g
Dimensions of Sphere Mounted to Rail System Stand (L x W x H)	163.0 mm x 205.4 mm x 226.3 mm (6.42" x 8.09" x 8.91")

Calibration

Upon request, Thorlabs offers calibration of each 4P3 Integrating Sphere with the individual sensors of choice. Thorlabs then provides NIST and/or PTB-traceable certificates of calibration.

Typical Performance Plot

Sphere Material Reflectance

Exchanging Port Inserts

Any of the inserts in the three modular faces can be swapped for other interchangeable port inserts, including additional inserts sold separately. Please wait until the integrating sphere has reached a temperature lower than 26°C to change inserts. Each port insert is fastened to the modular face with two M3 screws. The inserts can be exchanged by loosening the screws with a 2 mm (5/64") balldriver or hex key.

Maintenance and Safety

There are no serviceable parts in the 4P3 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. If you suspect there is a problem with your 4P3 Integrating Sphere, please contact Thorlabs and an engineer will be happy to assist you.