

# PTFE Diverging Beam Integrating Spheres

819D SERIES



819D Series Spectralon (PTFE) material integrating sphere bodies are designed for diverging input beams. PTFE based integrating spheres can be used in more demanding environments, including underwater and high or low temperature processes.



## Product Features

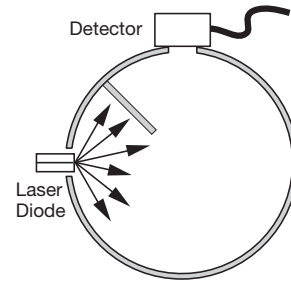
- Integrating sphere designed for diverging input beam
- Spectralon (PTFE) diffuse material for demanding environments
- Sphere provides for total collection of light and spatial integration
- Signal attenuation through multiple bounces in high reflectance coating
- Power measurements are insensitive to exact detector positioning



Models	819D-IS-2	819D-IS-3.3	819D-IS-5.3
Part Number	7N6325A	7N6322A	7N6311A
Spectral Range	250 nm to 2.4µm	250 nm to 2.4µm	250 nm to 2.4µm
Sphere Size	2 in.	3.3 in.	5.3 in.
North Pole Port Size	0.5 in.	1.0 in.	1.0 in.
0 Degree Port Size	1.0 in.	1.5 in. (w/ 7Z08362N)	2.5 in. (w/ 7Z08287N)
90 Degree Port Size	0.5 in.	1.0 in.	1.0 in.
180 Degree Port Size	0.5 in. (w/ port plug)	1.0 in. (w/ port plug)	1.0 in. (w/ port plug)
Thermal Limit	350°C	350°C	350°C
Material	PTFE	PTFE	PTFE

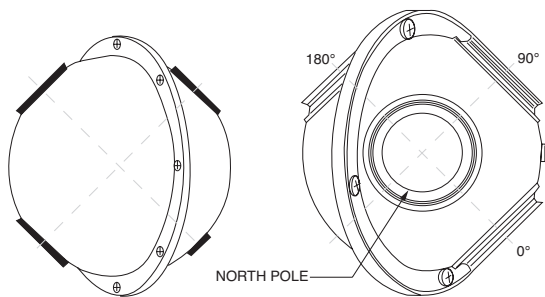
## Ideal Integrating Sphere for Diverging Beams

819D Series modular integrating sphere bodies feature four ports located at 0, 90 and 180 degrees, as well as at the north pole. The baffle is located between the 0- and the 90-degree ports. The 180-degree port is plugged with a port plug and the 0-degree port is used as the input. The input port has a pre-mounted port frame reducer, which reduces the input port size to be 1.0 inch. A fourth sphere port adds functionality to an integrating sphere but also diminishes the uniformity of the light distribution inside the sphere. We offer a wide variety of integrating sphere accessories that mount to the port frames, allowing the sphere to be customized for multiple applications.



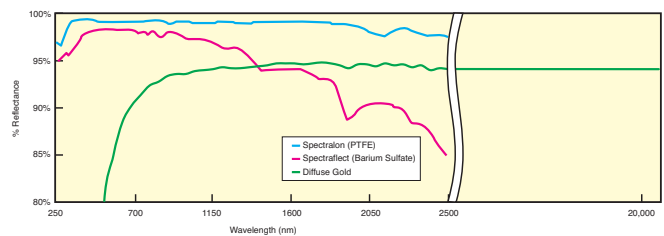
## 819D Series Integrating Sphere Applications

A typical configuration has the source beam entering through the 0° port with a baffled detector mounted on the 90° port. Common applications include measuring power of divergent light sources such as laser diodes, lensed LEDs, lensed lamps and lensed fiber. For more details about these applications, please see our Integrating Sphere Fundamentals and Applications tutorial.



## PTFE Sphere Material for Demanding Applications

Hydrophobic, chemically inert and thermally stable to 350°C, Spectralon (PTFE) based integrating spheres can be used in more demanding environments, including underwater and high or low temperature processes. At the same time, reflectance exceeding 95% from 250–2500 nm, 98% from 310–2100 nm, and 99% from 400–1500 nm make them ideal for even the most demanding measurements from the ultraviolet to the near infrared.



Our integrating spheres are available with PTFE (spectralon), barium sulfate (spectralect), and diffused gold sphere materials.

## Selecting an Integrating Sphere Size

Among the factors in selecting the size of an integrating sphere is the physical limitation of the measurement setup that will be used. Generally, as the sphere diameter grows, the “integration” property of the sphere improves, the port size can be larger and higher input power can be accommodated. However, with the increasing attenuation of the setup, the throughput will be decreased.

## Integrating Sphere Accessories

Newport offers accessories that are compatible with our integrating spheres to build a complete integrating sphere system. Various adapters are available to change port frame diameter, reduce an input port’s clear aperture, measure fiber optic power, connect lens tubes and mount sensors. Port plugs to block an unused sphere port are also available.

