

# THE IS05 MINIATURE SPHERE FIBER OPTIC INTEGRATING SPHERE



Photograph by Ancal, Inc.

## FEATURES:

**MINIATURE INTEGRATING SPHERE FOR MOST FIBER OPTIC SPECTROMETERS**

**QUARTZ INPUT WINDOW PROVIDES WIDE SPECTRAL RANGE (<210 nm - >1100 nm)**

**INSIDE SURFACE IS OF HIGH REFLECTANCE WHITE (>95% ABOVE 300 nm)**

**DIRECT CONNECTION TO SMA FIBER OPTIC TERMINATIONS**

**DIMENSIONS ARE THE SAME AS POPULAR RADIOMETRIC and QUANTUM SENSORS (0.94 inch Ø by 1.0 Inch; 24 mm Ø by 26 mm).**

**DOMED TOP MINIMIZES WATER BUILDUP.**

## DESCRIPTION:

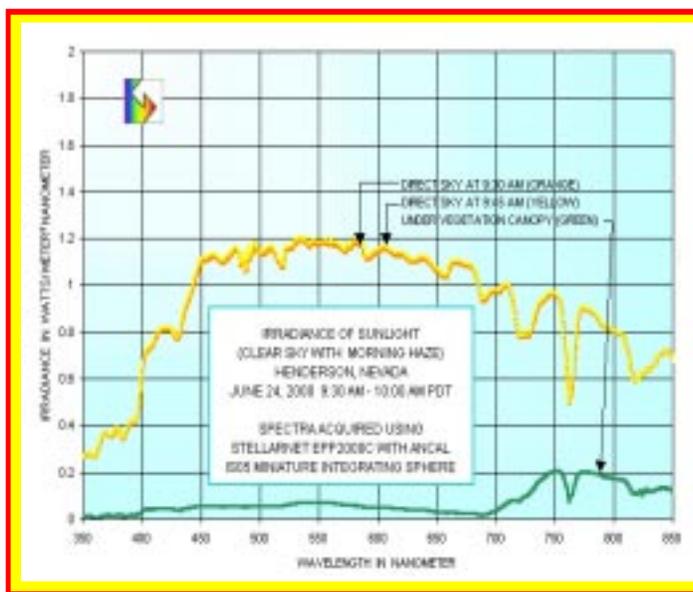
The IS05 miniature sphere is an integrating sphere which is designed specifically for use with miniature fiber optic spectrometers. The IS05 is a size to fit in small spaces, providing the precision of an integrating sphere for cosine reception of spectral radiation from UV-C through NIR in most any location.

The quartz input window provides spectral transparency over a range of from below 210 nm to better than 1100 nm. The inside surface is of highly reflecting white for high-sensitivity (better than 95% reflectance above 300 nm). The outer shell is of brass (metal) providing weather resistance. A domed top prevents excessive water buildup, thus providing a better than average weather resistance.

The dimensions of the IS05 are similar to those of several popular quantum and radiometer sensors. This allows a user to replace such integrating sensors with a full spectrum replacement without changing other reception characteristics. The IS05 is a passive receptor which may be interfaced via an SMA terminated fiber optic cable to most any fiber optic spectrometer.

## APPLICATION:

The IS05 is particularly effective for the cosine reception of irradiance and illuminance. Its response of optical radiation closely follows that of larger integrating spheres and its small size makes it particularly effective

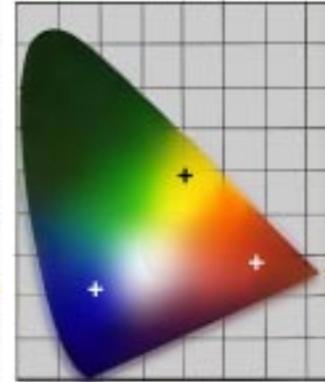
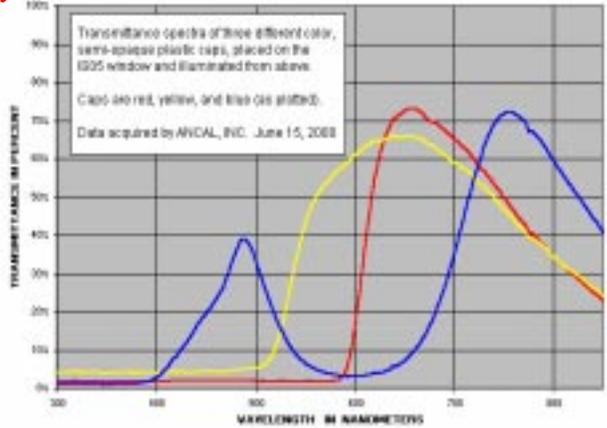


in most all locations. Because of its size, the IS05 may be readily positioned inside small objects where other receptors will not fit. Also, because of its light weight, it can be placed around a light source for goniometer type measurements.

Additionally, the IS05 is convenient for transmittance measurements. By placing semi-opaque materials directly on the quartz window, transmittance and color measurements can be made.

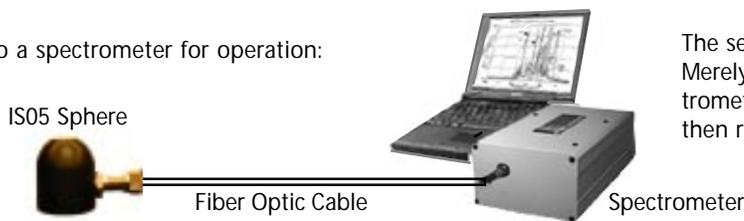
**APPLICATION (continued):**

For transmittance measurements of materials, the material of interest may be placed on the miniature sphere with illumination coming from above. The ratio of the spectrum with the material and a spectrum of the direct illumination is the transmittance. With the transmittance, color calculations such as L\*a\*b\* color space and CIE-Yxy color space (shown at far right) may be readily made.



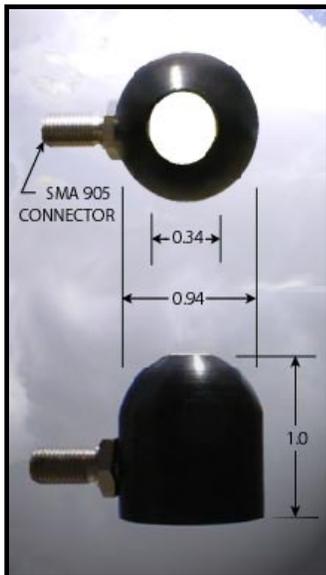
**SETUP:**

Connection to a spectrometer for operation:



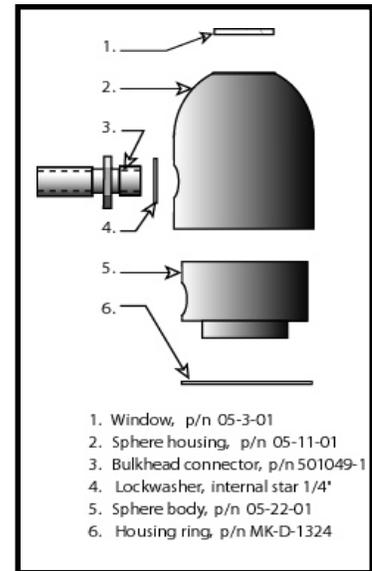
The setup for operation is straightforward. Merely connect the IS05 to a suitable spectrometer. Operation of the spectrometer is then routine.

**DIMENSIONS and SPECIFICATIONS**



- Spectral range: <210 nm - > 1100 nm
- Size: 0.94 inch (23½ mm) diameter  
1.0 inch (25½ mm) high  
1.5 inch (51 mm) width with SMA
- Reception area (nominal) : 0.01 in<sup>2</sup> (60 mm<sup>2</sup>)
- Weight: 0.4 ounce (14 grams)
- Material:  
Body: acetal (filled Delrin®)\*  
Window: quartz  
Connector: cor.res.steel
- Weather resistant (but not water tight)\*

\*Water tight IS06 miniature sphere with body of stainless steel (304) available on special order



THE IS05 MINIATURE INTEGRATING SPHERES ARE AVAILABLE FROM:



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