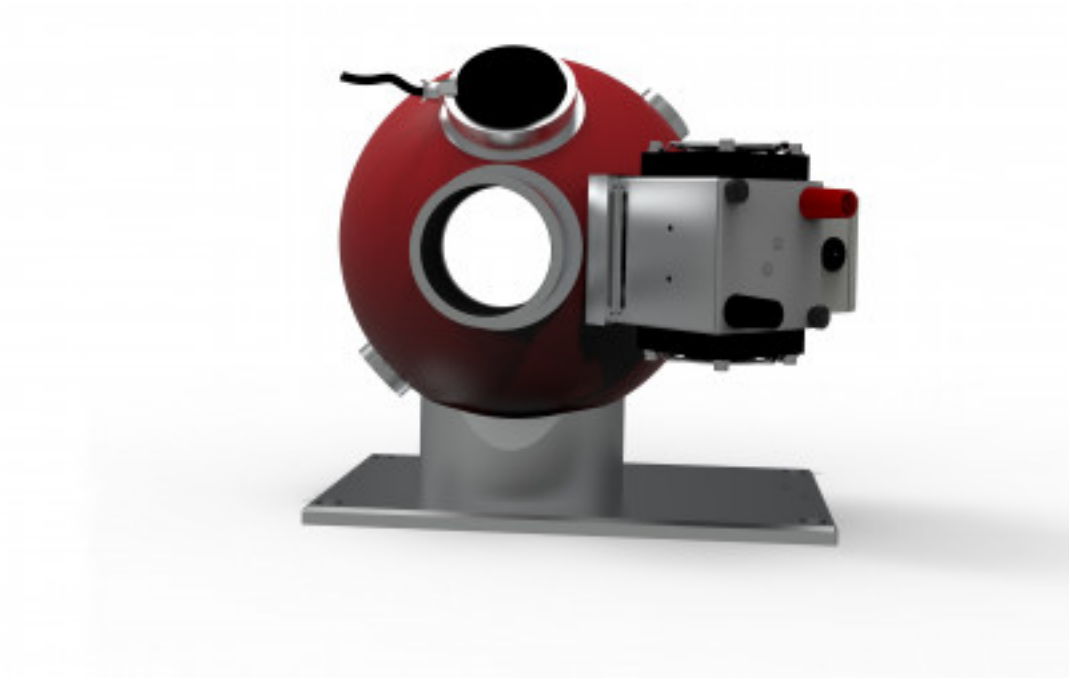
ISS-17-VA



Description

Integrating sphere light source

The integrating sphere is a “Uniform Light Source” and provides an illumination field that exhibits a magnificent level of luminance homogeneity.

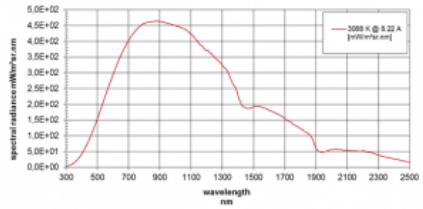
Halogen lamp or LEDs on request

Halogen lamps provide a continuous luminous spectrum and are therefore preferred for spectral radiance and luminance calibration standards. Especially for spectral measuring devices. On request we also offer LED based integrating sphere light sources.

ISS-17-VA with reference detector

Integral or spectral monitor detector

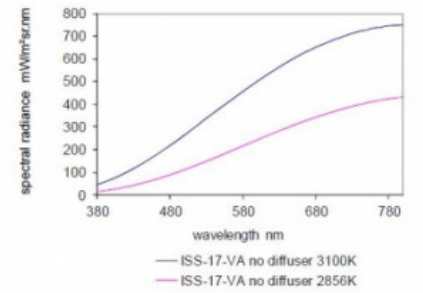
Sphere output is checked using a monitor detector. Both photodiode based integral detectors (CT-4501) and spectroradiometers (CSS-45) are available.



Spectral radiance of the ISS-17-VA at 3100K from 300nm to 2500nm.

Calibration standard for the spectral radiance

Calibration of the spectral radiance of the illumination field makes it possible to use of the integrating sphere light source as a calibration standard for the comparison of spectral radiometers for spectral radiance. High Dynamic Range Test and Calibration of Imaging and non-Imaging Devices as well as imaging spectrometers or pixel alignment are also major applications. In these applications, the halogen lamps are operated at a 3100K color temperature so as to ensure maximum intensity in the blue spectrum.



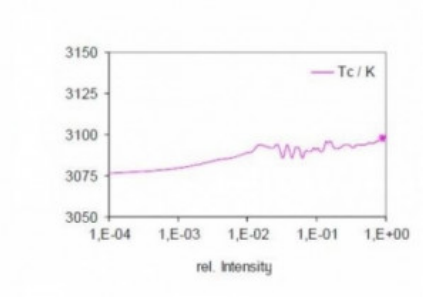
The ISS-17-VA can be operated at both color temperatures:2856K and 3100K

Calibration standard for the luminance

It is predefined that standard illuminant A with a 2856K color temperature should be used for calibration of the luminance responsivity of luminance measurement devices.

ISS-17-VA integrating sphere light source

The adjustable aperture between the light source and the integrating sphere makes it possible to adjust the intensity of the spectral radiance and luminance at constant color temperature. The luminance is displayed as a reference value. Besides the luminance, the monitor detector also



The ISS-17-VA-V01 provides high color temperature consistency

measures the color temperature. This makes it possible to set up the light source for both temperatures: 2856K and 3100K. Furthermore, the color temperature can be readjusted making it possible to utilize the typical 2000 operation hours of the halogen lamps. A diffuser window can be fixed between the light source and the sphere to improve diffuse light distribution in the integrating sphere.

ISS-17-VAM version with automatic remote controlled variable aperture is additionally to the manual aperture version ISS-17-VA available.

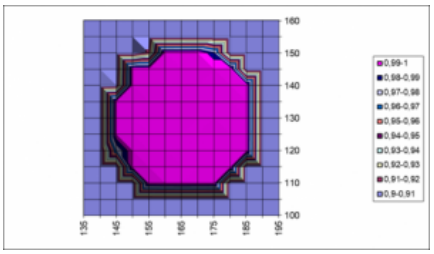
ED-ISS-100-MD control electronic

The control electronic designed and manufactured by Gigahertz-Optik is set-up with a precise power supply and an optometer ensures high precision during operation of the integrating sphere light source.

Traceable calibration

Calibration of the luminance, spectral radiance and color temperature is performed by the Gigahertz-Optik calibration laboratory for optical measurands. The calibration is done in reference to a calibration standard whose spectral radiance was calibration by the national measurements laboratory. The calibration and its results are confirmed by a corresponding calibration certificate that conforms to the ISO 17025.

across the entire luminance operation range



The ISS-17-VA offers an excellent uniformity of the Luminance distribution of typical +/-0,5% to the center point and +/-0,3% to the average value. The diffuser UMPF-LSOK30-DTB was used during the measurement of sphere homogeneity.

Specifications

General	
Integrating sphere	170 mm internal diameter (Base sphere model UMTB-170-S-1) with barium sulfate coating (ODP97).
Accessories	Pressure and suction fan for lamp cooling; 12V
Light Source	Halogen lamp 12V/100W, frosted (LH-100F-UV)
Control electronics	ED-ISS-100-MD elektronic device in a 3/4 19“ rack mounting.
Lamp power supply	Precision power adapter for halogen lamps with a16bit D/A converter for the lamp current. Ramp function during switching on/off for stress reduction of the lamp filament. RS232 interface for remote control using the optometer (LPS-100-RM). This power supply is part of the ED-ISS-100-MD.
Power Supply	AC input for (115 - 230) V / (50 - 60) Hz to the ED-ISS-100-MD. The electronic device ED-ISS-100-MD supplies the optometer, lamp power supply and fans.
Integral Detector	
Monitor detector	RGB detector (CT-4501-4) calibrated for the luminance and color temperature
Design	Display of the luminance and color temperature in connection iwth the monitor detector. Control function for the lamp power adapter for regulation of the color temperature (X1-RM)
Calibration	
Calibration	Spectral Radiance: At 2856 K and 3100 K, spectral range 380 nm to 780 nm in 10 nm steps, including calibration certificate. Luminance: At 2856 K with calibration certificate.

Specification	
Light Output Port	50 mm with resolution tube to suppress the lateral incident light (UMPA-2.0-xx)
Uniformity	better 98 %
Luminance (with diffuser window) 2856K	typ. (3 - 7.500) cd/m² min. (3 - 6.500) cd/m²
Luminance (with diffuser window) 3100K	typ. (5 - 15.000) cd/m² min. (5 - 13.000) cd/m²
Spectral Radiance (with diffuser window) 2856K	22 mW/(m²sr) @ 380nm, aperture 100% open 360 mW/(m²sr) @ 800nm, aperture 100% open
Spectral Radiance (with diffuser window) 3100K	46 mW/(m²sr) @ 380 nm, aperture 100 % open 750 mW/(m²sr) @ 800 nm, aperture 100 % open
ΔCCT	± 50 K over the specified intensity range
Miscellaneous	
temperature range	(+5 to +30) °C, no condensation