ISS-8P-RVA-ROD

https://www.gigahertz-optik.com/en-us/product/iss-8p-rva-rod/

Product tags: VIS

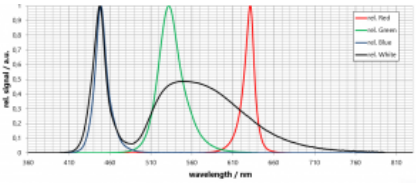
Description

Integrating sphere light sources provide a luminous field with very good uniformity of the luminance or radiance distribution. Hence they are commonly referred to as Uniform Light Sources. One of their main uses is the pixel sensitivity adjustment of digital image sensors and cameras. In photographic technology this is known as white balance. As part of the adjustment, sensitivity differences of individual pixels or pixel groupings are detected and corrected by uniform illumination of all the pixels. To detect possible linearity errors, white balance is performed at different intensities.

Integrating sphere light source model ISS-8P-RVA-ROD with optional control electronic.

White balance compact wide-angle cameras

Digital image processing is a prerequisite for many applications such as the autonomous movement of vehicles, mobile robots and driverless transport systems. The image is often captured by compact wide-angle cameras, which as safety-critical sensors, require a white balance at different intensities and operating conditions. If the integrating sphere light source has to be arranged at a significant distance from the camera due to the measuring setup which may involve climatic chambers for example, the required uniform light field can be very large. An alternative is to project the homogeneous light field of the integrating sphere through a solid, light-conducting medium right up to the camera optics.



Light source with RGB and white LED spectrum.

ISS-8P-RVA-ROD

The ISS-8P-RVA-ROD integrating sphere light source offers a number of unique features that make it ideal for use as a uniform light source to balance compact wide-angle cameras in applications with limited camera access and challenging operating conditions.

The 200 mm projecting glass rod may e.g. be introduced into climatic chambers.

ROD design

The homogenous light field of the integrating sphere is projected by means of a light guide onto a light field at a distance of 200 mm in front of the sphere. The rigid optical guide (ROD) has a diameter of 24 mm and offers a light field with 15 mm diameter. The light guide is sealed to the sphere, so it can also be introduced into climatic chambers.

Long-term stable integrating sphere

The integrating sphere is coated with ODM98, a synthetic material characterized by its long-term stability and robustness. The encapsulation of the light field by the ROD avoids contamination of the coating.

LED light source

The light sources used are long-life LEDs colored red, green, blue and white.

The LEDs can be operated individually and together. The RGB LEDs support the specifications of the EMVA 1288 standard of the European Machine Vision Association.

The dynamic range of LEDs in CW operation is relatively low. The integrating sphere light source ISS-8P-RVA-ROD therefore offers, in addition to the current setting, a remote-controlled aperture for intensity adjustment with constant LED current.

Short and long term luminance stability

For the best possible short-term and long-term stability of the luminance, the LEDs are operated in current mode. In addition, the intensity is measured by a monitor detector. The LED control and regulation is done by the optional control electronics. It offers four precision power supplies as well as a touch-screen display and RS232, USB and Ethernet interfaces for manual or remote operation. The monitor detector is calibrated for the luminance at the ROD light field.

Re-calibration by the user

For applications in which the light source cannot be returned to the manufacturer for re-calibration, there is the possibility of re-calibration by the user. In addition, Gigahertz-Optik optics offers a luminance reference measuring device that is mounted in front of the ROD illuminated field. For re-calibration, the device is connected to the control electronics via USB. Re-calibration with adjustment is fully automatic. Only the reference meter needs to be periodically returned to Gigahertz-Optik for recalibration.

Traceable calibration

The luminance calibration of the uniform light source is carried out in Gigahertz-Optik's calibration laboratory for optical radiation measurements. In addition to the calibration of luminance, the spectral radiance and luminance distributions are confirmed in the calibration certificate.

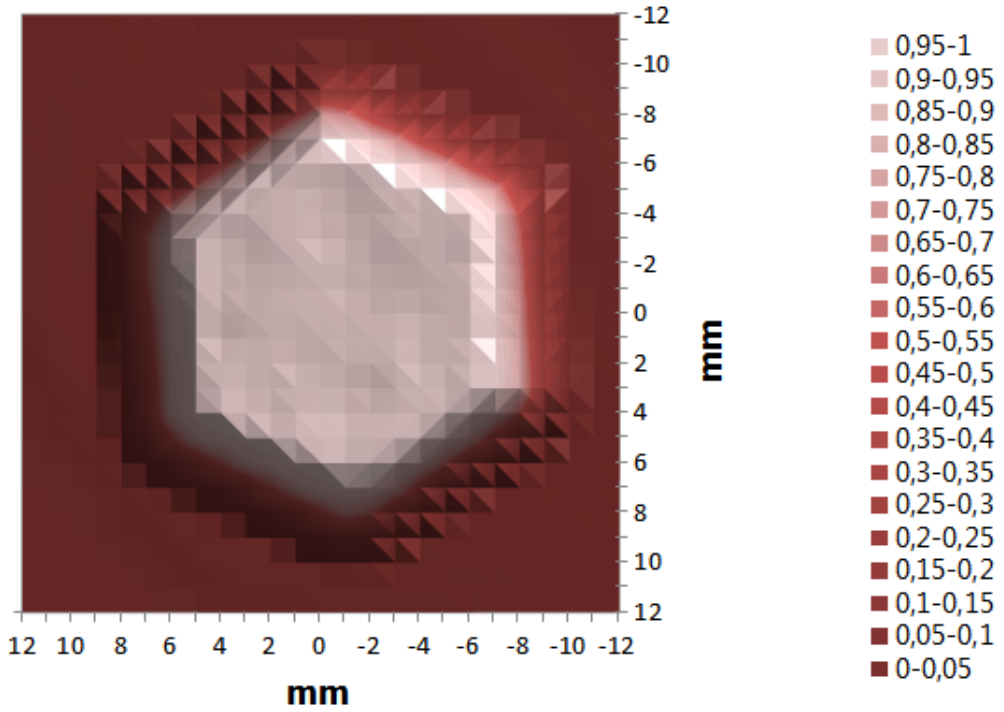
Specifications

General	
Short description	Integrating sphere light source with homogeneous light field for use as a reference lamp for pixel matching of image sensors and cameras as well as luminance and radiance standard.
Main features	15 mm Diameter light Output port via glass rod. Integrating sphere with synthetic ODM98 coating and reference sensor. Integrated high performance RGBW LED with variable aperture.

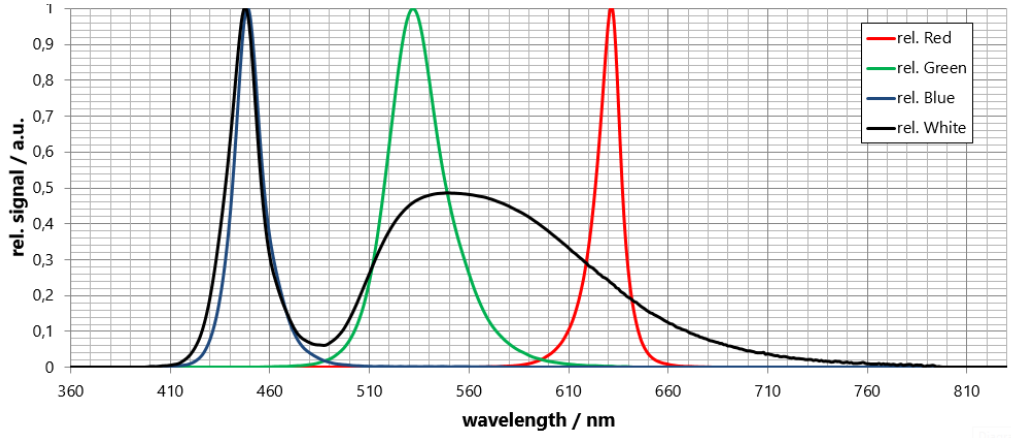
Measurement range	RGBW LED spectral range
Typical applications	Reference lamp for pixel matching of image sensors and cameras as well as luminance and radiance standard. Especially for use in climatic chambers (environmental chambers).
Calibration	Calibration of the spectral radiance. Calibration certificate with description of the calibration procedure, reference standards applied, traceability and calibration uncertainty.

Product

Uniformity



Spectral distribution



Luminance				
	ISS-8P-RVA-ROD / ED-SC-4x20-MD	red LED	green LED	
	Radiance L_e / W/m²sr	1,99		2,01
	Luminance L_v / cd/m²	397	1157	

Dynamic range with variable aperture = 6 orders of magnitude (smallest value of reference detector 2 µW/m²sr)

Note: Different luminance levels available

Miscellaneous

Temperature range

Operation (electronics and sphere): (10 to 30) °C

Operation (Rod): typical range of climate chambers, please contact us for further details.

Dimensions	ISS-8P-RVA-ROD: See drawing in section downloads
	Electronic device: 46.5 mm x 29 mm x 33.5 mm
Weight	ISS-8P-RVA-ROD: 2.7 kg
	Electronic device: 12 kg

Downloads

Type	Description	File-Type	Download
ISS-8P-RVA-ROD	Drawing	pdf	https://www.gigahertz-optik.com/assets/Uploads/V127717.pdf
LDM-1801	Drawing	pdf	https://www.gigahertz-optik.com/assets/Uploads/V127716.pdf

Purchasing information

Article-Nr	Modell	Description
Product		
15309241	ISS-8P-RVA-ROD	ISS-8P-RVA-ROD system including calibration.
15309242	ED-SC-4x20-MD	Electronic device for the ISS-8P-RVA-ROD. 19“ rack.
15309243	ED-SC-4x20-MD-V01	Electronic device for multiplex use of two ISS-8P-RVA-ROD. 19“ rack.
Re-calibration		
	K-ISS8PRVAROD-	Re-calibration of the ISS-8P-RVA-ROD.
	K-LDM1801-	Re-calibration of the radiance detector head LDM-1801.
	K-X1-C	Re-calibration and adjustment of the optometer X1-1 in all gain ranges.
Accessories		
15309244	LDM-1801-4	LDM-1801-4 Transfer head including calibration.
15298890	X1-1	Optometer for LDM-1801-4. USB.
	BHO-xx	Hard case for X1-1 with LDM-1801-4.

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- After-Sales Support
- Calibrations & Re-Calibrations (ISO/IEC 17025 Calibration Services, factory calibration, Calibration of Third-Party Products)
- Repairs & Updates
- OEM & Feasibility Consulting of Customized Solutions

Send us your inquiry or contact us by phone or e-mail. We would welcome your feedback too or review us on Google.

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