

BN-9101

<http://www.gigahertz-optik.de/en-us/product/BN-9101>

Product tags: UV , VIS , NIR



Description

Calibration standards

Calibration standards enable the calibration and comparison of measurement instruments to absolute measurement quantities. Calibration standards provide a reference signal corresponding to the measurement quantity to be calibrated. The reference signal of the calibration standard is calibrated in the respective measurement quantity. The calibration of the measurement instrument is performed by comparing the measurement signal of the measurement device with the standard specifications in the calibration certificate. Deviations are compensated for by adjusting the measurement instrument accordingly.

Spectral irradiance

The spectral irradiance [$\text{W}/\text{m}^2 \cdot \text{nm}^{-1}$] is important for qualification of the incident radiant flux of a reference plane. Spectral radiometers are the typical measurement devices for the spectral irradiance. Calibration of the spectral radiometer is done using a calibration standard lamp for the irradiance.

BN-9101 calibration standard lamp

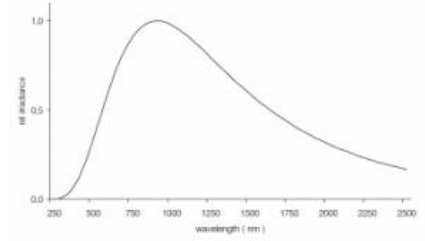
The BN-9101 calibration standard lamp has a 1000W quartz halogen bulb that is ideal for the usable spectral range between 250 and 2500nm and characterized by its stable filament. Since 1991, Gigahertz-Optik GmbH manufactures and calibrates this calibration standard that was designed in consultation with PTB Braunschweig (Federal Physical-Technical Institute). The lamp is firmly fixed into the socket. The electrical contact is installed through braze-welding. This sophisticated mounting and electrical connection ensures maximum position stability of the lamp and maintains a constant electrical resistance at the contacts. The standard lamp connection is done using robust ceramic terminal strips. Each standard lamp is burned-in before it is calibrated. The suitability of the lamp as a calibration standard is assessed based on its burn-in behavior.

BN-9101-1 with FEL lamp from General Electric

In the short wavelength spectral range, the 1000W FEL quartz halogen lamp from GE manufacturers provides a higher UV irradiance level compared to the BN-9101-2 version. As a result, this model ages faster.

BN-9101-2 with FEL lamp from Osram Sylvania

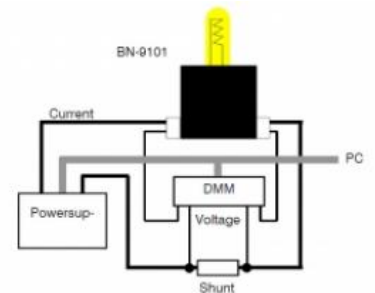
In the short wavelength spectral range, the 1000W quartz halogen lamp from Osram Sylvania provides a lower UV irradiance level compared to the BN-9101-1 version. As a result, this model has a longer and stable lifetime.



Typical emission spectrum



BN-9101 with BN-9101Z-01 cross hairs



Example of the operation of a standard lamp in constant current mode with voltage measurement at the lamp base/socket and indirect current measurement using a calibrated shunt resistor

BN-9101Z-01 transparent target

The BN-9101Z-01 crosshair is fastened onto the socket of the standard lamp using dowel pins. It enables precise alignment of the measurement instrument during calibration of the standard lamp and the calibrating measurement devices to the same point of the lamp filament.

Traceable factory calibrations

The factory calibrations of the spectral irradiance are performed by Gigahertz-Optik's calibration laboratory for optical radiation measurement quantities. The calibrations are traceable to calibration standards of Gigahertz-Optik's calibration laboratory that is accredited by ISO/IEC 17025 (D-K-15047-01-00). Calibration and results of the calibration are confirmed by a calibration certificate conforming to the ISO 17025 specifications.

ISO/IEC 17025 calibrations

The ISO/IEC 17025 calibrations of the spectral irradiance are performed by the Gigahertz-Optik's calibration laboratory that is accredited by the ISO/IEC 17025 (D-K-15047-01-00). Calibration and results of the calibration are confirmed by a calibration certificate conforming to ISO/IEC calibration certificate.

Specifications

Specification	
Version	BN-9101-2
lamp	Sylvania quartz halogen lamp
power	1000 W
voltage	105 V
current	8.100 A
CCT	typ. 2900 K
typical irradiance	measurement distance 70 cm
	@ 250 nm 0.07 mW/m ²
	@ 1100 nm 96 mW/m ²
	@ 2500 nm 16 mW/m ²
operation position	standing
dimensions	PDF on request

Version	BN-9101-1
lamp	FEL quartz halogen lamp from General Electric
power	1000 W
voltage	112 V
current	8.000 A
CCT	typ. 3100 K
typical irradiance	measurement distance 70 cm
	@ 250 nm 0.12 mW/m ²
	@ 1100 nm 110 mW/m ²
	@ 2500 nm 18 mW/m ²
operation position	standing
dimensions	PDF on request

Downloads

Type	Description	File-Type	Download
Drawing	BN-9101 Drawing	pdf	http://www.gigahertz-optik.de/assets/Uploads/100284.pdf

Purchasing information

Article-Nr	Modell	Description
Product		
100284	BN-9101-1	Calibration standard lamp, 1000W lamp, burn-in certificate
100014	BN-9101-2	Calibration standard lamp, 1000W lamp, burn-in certificate
Calibration		
15300352	KLW-S1-01	Calibration of the spectral irradiance 250-400nm, factory certificate
15300353	KLW-S1-02	Calibration of the spectral irradiance 400-1100nm, factory certificate
15300354	KLW-S1-03	Calibration of the spectral irradiance 1100-2500nm, factory certificate
15300355	KLW-S1-04	Calibration of the spectral irradiance 250-1100nm, factory certificate
15300356	KLW-S1-05	Calibration of the spectral irradiance 400-2500nm, factory certificate
15300357	KLW-S1-06	Calibration of the spectral irradiance 250-2500nm, factory certificate
15300033	KLD-S1-01	Calibration of the spectral irradiance 250-400nm, DAkkS certificate
15300034	KLD-S1-02	Calibration of the spectral irradiance 400-1100nm, DAkkS certificate
15300035	KLD-S1-03	Calibration of the spectral irradiance 1100-2500nm, DAkkS certificate
15300036	KLD-S1-04	Calibration of the spectral irradiance 250-1100nm, DAkkS certificate
15300037	KLD-S1-05	Calibration of the spectral irradiance 400-2500nm, DAkkS certificate
15300350	KLD-S1-06	Calibration of the spectral irradiance 250-2500nm, DAkkS certificate

Article-Nr	Modell	Description
Accessories		
101181	BN-9101Z-01	Transparent target
100994	BHO-10	<p>Hard-top casing for up to 3 BN-9101 lamps</p> <p>A BHO-10 is required for shipping of the BN-9101!</p>