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OPTRONIC®
LABORATORIES

OL UV-40

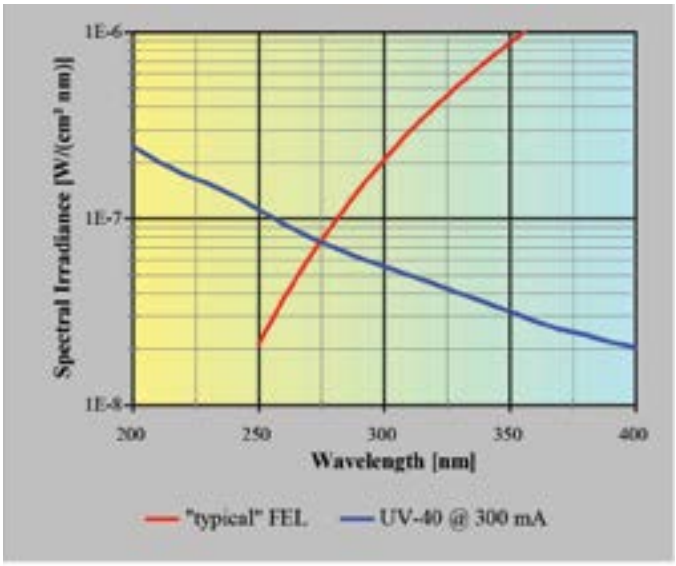
Ultraviolet Irradiance Standard



The OL UV-40 consists of a stable, 30-watt deuterium lamp with an ultraviolet transmitting suprasil window. The lamp is calibrated for spectral irradiance over the wavelength range of 200 nm to 400 nm. The OL UV-40 serves as a convenient, accurate standard for calibrating UV radiometers and spectroradiometers, or it can be used as a known source of spectral irradiance in various UV exposure tests. The deuterium lamp is especially suited for use as an ultraviolet standard since it emits a line-free continuum in the 200 to 400 nm region. Emission is strongest at 200nm, where most instrument sensitivities are low, and weakest in the visible and infrared (which reduces stray-light problems). At 250 nm, the calibrated irradiance value for the OL UV-40 is approximately 5 times greater than the 1000-watt tungsten lamp standards of spectral irradiance. Spectral irradiance values are reported in tabular form every 10 nm from 200 to 400 nm. Typical spectral irradiance curves for the OL UV-40 and 1000 W tungsten lamp standards are shown for comparison.

Calibration of the OL UV-40 over the range of 250 to 400 nm is based on the National Institute of Standards and Technology (NIST) high-accuracy standards of spectral irradiance. Calibrations over the range of 200 to 250 nm are based on NIST deuterium lamp standard of spectral irradiance. The instrumentation used by Optronic Laboratories to transfer calibrations from a standard lamp to a test lamp is patterned after that at NIST. The measurement technique employs the highly accurate wavelength-by-wavelength method of comparison with both lamps operating at a set DC current of 300 mA.

The uncertainty in the spectral irradiance values for the OL UV-40 varies from 3 to 5% from 400 to 250 nm and is 10% below 250 nm. Prior to calibration, each lamp is seasoned for 24 hours. Stability tests indicate that after the initial burn-in, the irradiance generally remains constant to within ±2% for a period of 50 hours use. The aging of the standard is not a function of the shelf life.



Typical Spectral Irradiance values for a FEL 1000 W tungsten lamp at 50 cm and a UV-40 Deuterium lamp at 30 cm.

SPECIFICATIONS	
Lamp	Deuterium *(30 watts)*
Wavelength Range	200 nm to 400 nm
Operating Current	300 mA
Typical Irradiance *@ 250 nm (30 cm)*	1.2 x 10-3 W/(m² nm)
Uncertainty	±3 to 10%
OPTIONAL ACCESSORIES	
Deuterium Lamp Power Supply*	OL 46D
Adjustable Lamp Holder Mount	OL 63

*A high-accuracy precision power supply specially designed for this type of lamp is necessary for operation as a standard.

For more information visit OptronicLabs.com or contact Info@OptronicLabs.com

Data Sheet: B033 Dec 2020 | Rev A
As part of our policy of continuous product improvement, we reserve the right to change specifications at any time.

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