



CL-Hg
Wavelength Calibration Standard (250-600nm)

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The CL-Hg houses a germicidal mercury lamp, used for the purpose of wavelength calibrating monochromators and spectroradiometers.

Comprising a low pressure mercury lamp, emitting radiation principally at 253.5nm (germicidal lamp), the CL-Hg may be used in free space or coupled to the entrance port of any Bentham monochromator or spectroradiometer.

The CL-Hg may be operated directly from 220V AC mains supply.

The wavelengths of the spectral lines emitted by the lamp are dependant only on the energy levels occupied by electrons in the mercury atom and are thus constant for any source in which mercury atoms are caused to emit light. No calibration of this source is required.

The mercury atom emits a large number of spectral lines, a list of which can be found on the NIST Atomic Spectra Data website (www.nist.gov/pml/data/asd.cfm). Not all lines are suitable for the purposes of monochromator and spectroradiometer calibration, in which one seeks spectral lines that are sufficiently intense for measurement, and sufficiently isolated from other lines. A list of the most prominent lines which have been found useful for calibrating spectral measuring equipment is provided below.

The mercury spectrum contains no useful lines above 579.07nm but the shorter wavelength lines can be used to calibrate monochromators by considering higher diffraction orders.

Mechanical

Lamp Type	Germicidal low pressure mercury lamp
Base	E27
Dimensions LxWxH	216 x 139 x 55 mm

Electro-optical

Nominal Lamp Power and Voltage	75W, 220 VAC (no PSU or ballast required)
Operating Current	27mA
Expected Lifetime	500 hours
Most Prominent Spectral Lines	253.65nm, 296.73nm, 365.02nm, 404.66nm, 365.02nm, 404.66nm, 576.96nm, 579.07nm
Calibration Frequency	Not Applicable
Colour Temperature / K	6403.5
Colourimetry	x = 0.1721 y = 0.0666 u = 0.1992 v = 0.1157 u' = 0.1992 v' = 0.1736
Lux / cd m ⁻²	10029.3
UVA / mW sr ⁻¹ m ⁻²	120.443
UVB / mW sr ⁻¹ m ⁻²	22.293
UVC / mW sr ⁻¹ m ⁻²	4506.5
Peak/Dominant Wavelength (nm)	253.75
Purity / %	86.2