

# HG-1 Mercury Argon Calibration Source



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The compact, low-cost HG-1 Mercury Argon Calibration Source is a spectral wavelength calibration source for UV-VIS-Shortwave NIR spectrophotometric systems. The HG-1 produces first order mercury and argon spectral lines from 253-922 nm and second order argon lines to 1700 nm for use in performing fast, reliable spectrometer wavelength calibrations. Easily identifiable mercury and argon spectral emission lines are printed on the HG-1 housing.

With the HG-1 and an Ocean Optics spectrometer, users can perform wavelength calibration with a spreadsheet program such as Microsoft Excel or a calculator that performs linear regressions. For technical assistance in performing the latter option, click on [Calibrating the Wavelength of Your Spectrometer](#).

The HG-1 features an SMA 905 Connector to couple to Ocean Optics spectrometers and fiber optic accessories, including optical fibers. The HG-1 operates with a 12 VDC power supply (included with the unit) or 9V battery (not included).

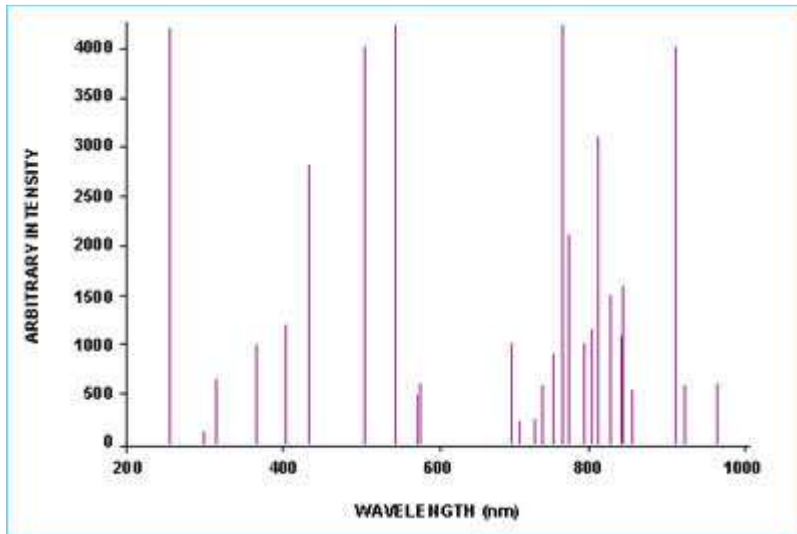
**User's Tip:** Ocean Optics spectrometers are carefully calibrated as part of the company's standard quality assurance process. However, as is the case with all spectrometers, wavelength will drift slightly due to time and environmental conditions. If wavelength accuracy is an important part of your work, consider including calibration spectra with every experiment.

## Specifications

Output:	Low-pressure gas discharge lines of mercury and argon
Spectral range:	253-1700 nm
Dimensions (in mm):	125.7 x 70 x 25.8
Power consumption:	250 mA at 12 VDC
Power requirements:	12 VDC wall transformer (included) or 9 VDC battery (additional)
Internal voltage:	600 volts at 30 kHz
Bulb life:	~ 3,500 hours (at 20 mA)
Amplitude stabilization:	~1 minute
Aperture:	3 mm
Connector:	SMA 905

**User's Tip:** Ocean Optics recommends using the HG-1 with a 50  $\mu\text{m}$ -diameter or smaller optical fiber or entrance slit. The use of fibers and slits  $>50 \mu\text{m}$  in diameter will result in optical resolution (full width, half maximum) that adversely affects wavelength calibration. Also, keep in mind that if the spectrometer has no slit and your experiment involves using optical fibers of different diameters, wavelength re-calibration will be required. That's because optical resolution will vary according to the diameter of the fiber in use -- i.e., a 50  $\mu\text{m}$  fiber will resolve differently than a 100  $\mu\text{m}$  fiber, and so on. Recalibration is also recommended every time that you unscrew the fiber from the SMA 905 Connector on the spectrometer.

# Spectral Output



Mercury emission lines are <600 nm. Argon emission lines are >600 nm, and are shown here on an exaggerated amplitude scale.

## Strong Hg Emission Lines by Wavelength (nm)

**User's Tip:** There are more emission lines published here than printed on the label on the HG-1 housing. The label is intended as a quick, convenient reference and does not list every Ar or Hg emission line that exists.

253.652	404.656
296.728	407.783*
302.150	435.833
313.155	546.074**
334.148	576.960
365.015	579.066

\* This spectral line will not be evident with spectrometers configured with 300- or 600-lines/mm gratings.

\*\* With spectrometers that have 1200-, 1800-, 2400- or 3600-lines/mm gratings, spectral lines will be evident at 576.96 nm and 579.07 nm.

## Strong Ar Emission Lines by Wavelength (nm)

696.543	800.616*
706.722	811.531
714.704	826.452
727.294	842.465
738.398	852.144
750.387	866.794
763.511	912.297
772.376	922.450
794.818	

*\* This spectral line will be evident only with spectrometers configured with 1800-, 2400-, or 3600-lines/mm gratings.*