



## HHeLM-L HHeLM-LOT HHeLM-LOEM



The Hydrogen Light sources come standard with everything needed to produce VUV radiation in the 110 to 200 nm region. A heater on the light source bulb generates H<sub>2</sub> or D<sub>2</sub> in the light source. This allows the user to operate the light source at low H<sub>2</sub> levels for an “optically thin” Lyman-Alpha line or a multiple-lined H<sub>2</sub> spectrum in the 110 to 165 nm region and a continuum between 165 and 375 nm.

	<b>HHeLM-L</b>	<b>HHeLM-LOT</b>	<b>HHeLM-LOEM</b>	Units
Status	Production	Production	Production	
Peak WL	121.567	121.567	121.567	nm
Peak WL H <sub>2</sub> VUV	110-165	110-165	110-165	nm
Peak WL UV	165-400	165-400	180-400	nm
VUV Flux H Ly Alp	3x10 <sup>14</sup>	3x10 <sup>14</sup>	3x10 <sup>14</sup>	photons/sec/steradian
VUV Flux H <sub>2</sub>	<1x10 <sup>14</sup>	<1x10 <sup>14</sup>	<1.5x10 <sup>14</sup>	photons/sec/steradian
Full angle output cone	45	45	45	degrees
Bulb window location	0	0	0	cm
Window CA	0.8	0.8	0.8	cm
Modulation	Y	Y	option	
Standard flanges	2.75" CF	2.75" CF	2.75" CF	inches

### HHeLM-L

NIST traceable intensity calibration  
H<sub>2</sub> source is adjustable with internal heater

### HHeLM-LOT

Calibration against H atoms in addition to NIST traceable intensity calibration  
H<sub>2</sub> source is adjustable with internal heater

### HHeLM-LOEM

H<sub>2</sub> source is adjustable with internal heater  
Control electronics separate from main lamp box (can be moved >60 cm from lamp)





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Continuously variable heater temperature setting that allows:

“Optically thin” source of Lyman-Alpha radiation (121.6 nm) or with heater adjustment a broadband VUV UV light source with output from 112 to 400 NM.

Hydrogen spectral output from 112 to 6000 NM.

Air-cooled, optically stable (Typically < 1% drift per hour)

Longer lifetime than most available Lyman-Alpha sources owing to an internal source of hydrogen

Breakout box for RS-232 telemetry, BNC modulation input (if equipped), power switch, and USB interface for interface software (see software manual)

“Smart Light Source” software allows for precise control and monitoring of light source parameters (heater, RF power etc.)

- Visible NIR source emission intensity graphing and logging for tracking source stability.
- Temperature and RF power logging and graphing via graphical chart-recorder interface
- Excel-friendly .csv output format for data saving

## Configurations

HHeLM-L, HHeLM-LOT are physically identical but have bulbs selected for high Lyman Alpha output which is verified by taking VUV spectra. They are delivered with the heater setting optimized for Lyman alpha output. The HHeLM-LOT are additionally verified to have an “optically thin” Lyman alpha line by measurement of the absorption of the VUV emission by atomic hydrogen.

The HHeCM-L and HHeCW-L light sources have the same physical configurations as the HHeLM series except for the lamp bulbs. Lamp bulbs in these lamps are configured for concentration of the plasma along the bulb axis. This allows operation at higher H<sub>2</sub> pressures which increases optical power the 110 to 165 nm H<sub>2</sub> molecular and the 165 to 400 nm H<sub>2</sub> continuum spectra. The HHeCM-L bulbs are optimized for flood applications while the HHeCW-L bulbs are optimized for coupling to wavelength filtering devices such as monochromators.