

## Data Sheet Photoionisation (PID) Lamps

### PID lamps exactly matched to instrument requirements

Heraeus has many years of experience in providing DC and RF driven PID lamps to leading instrument manufacturers. Applications include gas chromatography, portable gas sniffers and sample ionisation for mass spectrometry. The Heraeus engineering team works closely with instrument development engineers to design unique lamps matched to the instrument. Miniature PID lamps (P\_R-6 series) for very compact handheld applications, e.g. in gas monitoring, are a Heraeus speciality. The Heraeus engineers can be contacted online at [www.heraeus-noblelight.com/analytics](http://www.heraeus-noblelight.com/analytics) for more information.



### Key features of Heraeus PID lamps:

- different gas fills (e.g. Xenon, Krypton, Deuterium, Argon)
- very high gas fill purity for long lamp lifetime
- different window materials with different cut-off wavelengths
- high purity window material for better transmission
- DC or RF (electromagnetic field) driven lamps
- unique lamp designs and dimensions to fit any instrument

### Technical data:

Lamp type	PXS 084	PXS 096	PKS 106	PAS 118	PXL 084	PKL 102	PAL 118
Excitation method	DC	DC	DC	DC	DC	DC	DC
Ignition voltage (V)	1500	1500	1500	1500	1500	1500	1500
Photon Energy (eV)	8.4	9.6	10.6	11.8	8.4	10.6	11.8
Operating current (mA)	<math>\leq 2</math>	<math>\leq 2</math>	<math>\leq 2</math>	<math>\leq 0.1</math>	<math>\leq 2</math>	<math>\leq 2</math>	<math>\leq 0.1</math>
Typical operating current (mA)	0.5	0.5	0.5	<math>\leq 0.1</math>	0.5	0.5	<math>\leq 0.1</math>
Ignition time (ms)	<2000	<2000	<2000	<2000	<2000	<2000	<2000
Length x Diameter (mm)	53.5 x 19.6	53.5 x 19.6	53.5 x 19.6	53.5 x 19.6	53.5 x 35	53.5 x 35	53.5 x 35

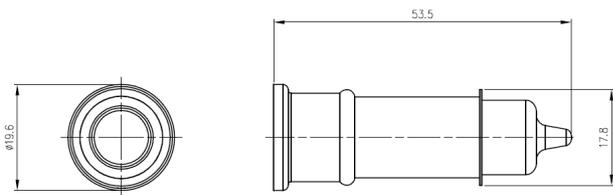
Lamp type	PXR 084	PXR 096	PKR 100	PDR 102	PKR 106	PAR 118	PKR 106-6
Excitation method	RF	RF	RF	RF	RF	RF	RF
Photon Energy (eV)	8.4	9.6	10	10.2	10.6	11.8	10.6
Operating current (mA) *	80 to 150	N/A					
Typical RF power input (W) *	0.5	0.5	0.5	0.5	0.5	<math>\leq 0.5</math>	<0.5
Ignition time (ms) *	100	100	100	100	100	100	N/A
Length x Diameter (mm)	53 X 12.7	30 X 6					

\* These operating figures relate to the C210 13MHz power supply - other RF operating frequencies and conditions are possible

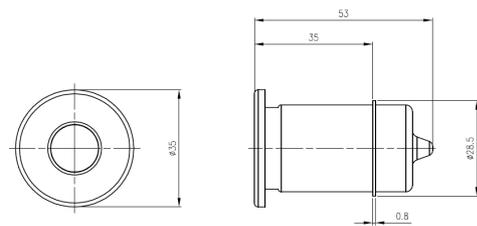
Other lamp versions available upon request.

## Dimensional outlines

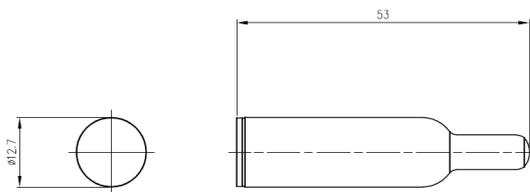
P\_S lamps (DC)



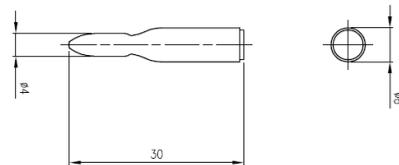
P\_L lamps (DC)



P\_R lamps (RF)

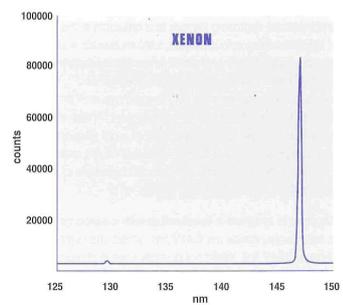
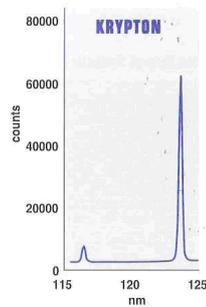
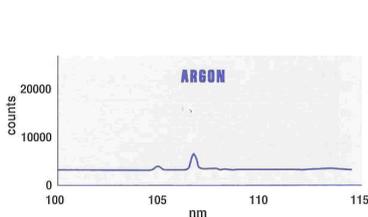


P\_R-6 lamps (RF)



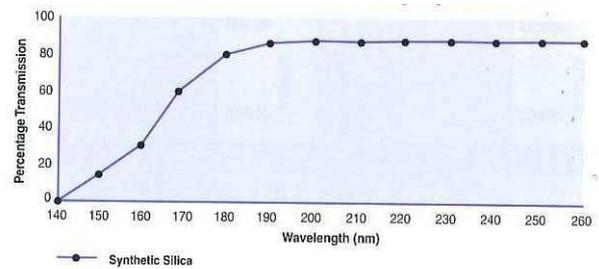
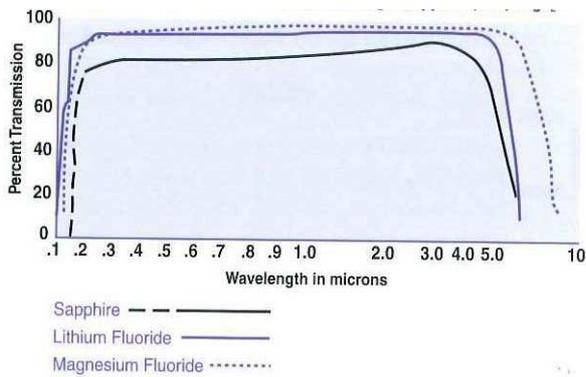
## Gas fill

Heraeus photoionisation lamps are available with a variety of gas fills including argon, krypton, xenon and deuterium gases. When used with the windows detailed below, outputs are equivalent to the photon energies quoted.



## Windows

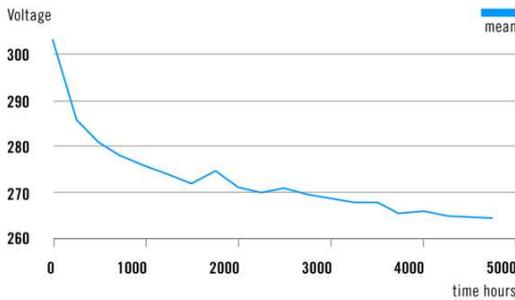
Heraeus PID lamps are available with magnesium fluoride, lithium fluoride, sapphire and synthetic silica windows. Magnesium fluoride is the most common window material, providing excellent deep ultraviolet transmission with reasonable lifetime. Heraeus' unique processing technique allows the use of a thinner  $MgF_2$  window improving transmission and therefore improving life due to a reduction of the density of light absorbing colour centres.



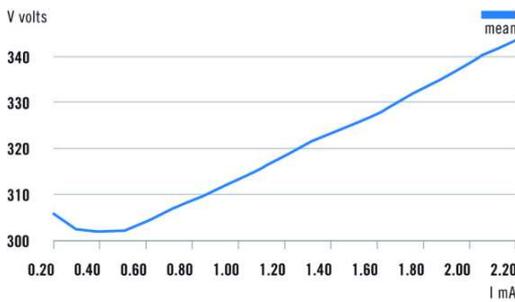
## Photon energies

Gas	Xenon	Krypton	Hydrogen	Argon	Mercury vapour
Photon energy (eV)	8.4	10.0	10.2	11.6	4.9
	9.6	10.6		11.8	6.7
Wavelength (nm)	147.0	123.6	121.6	106.7	253.7
	129.5	116.5		104.8	185.0

## Typical voltage – lifetime characteristic (mean; run at 0.5 mA and room temperature)



## Typical voltage – current characteristic (mean of several PID lamp types)



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