

Halogen light sources

200 - 400 W halogen source

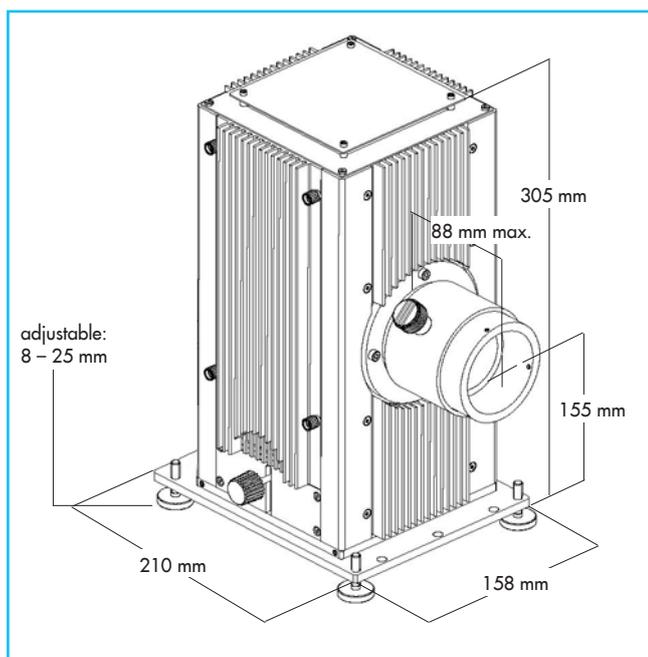
- Stable VIS-NIR source
- Fan cooling
- Precision external lamp adjustments
- Choice of different UV-NIR condensing optics for collimated beam
- Supports wide range of accessories

Lamp housing construction

This housing was especially designed for 200 - 500 W arc lamps. But it also operates halogen lamps in the 200 - 400 W range.

Halogen lamps need two voltage connections. An interface mounted to the rear of the housing provides electrical requirements to the lamp and includes the cables for connection to the appropriate power supplies.

Our lamp housings have height-adjustable feet which allow adjusting the optical axis by 15 mm. You can take the feet off and hard mount the housing to a bench, rail or optical table with the optics axis centered over the hole pattern to allow for easy integration with the rest of your setup. The height of the optical axis is then 155 mm.



Cooling

Tungsten halogen lamps become up to 900° C hot (surface temperature) during operation. They require a safe, temperature-controlled environment. Below 200° C the halogen cycle does not work any more. There is also a maximum permitted pinch temperature which must not in any case be exceeded during operation.

The housing has a cooling fan built in that provides the proper air flow.

Condensing optic

We offer a choice of several condensers with 35 mm or 50 mm apertures; they differ in:

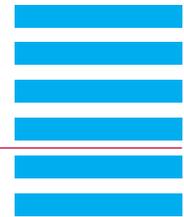
- size (35 or 50 mm beam diameter)
- lens material and therefore usable spectral range
- F/number and therefore beam quality and collection/collimation efficiency

The condensers are intended for collimated beams, but can also be positioned for compensating focal length change due to dispersion and for producing a more diverging or converging beam.

For best uniformity use a slightly diverging beam. For best quality images use the condenser as a collimator and a secondary focusing lens.

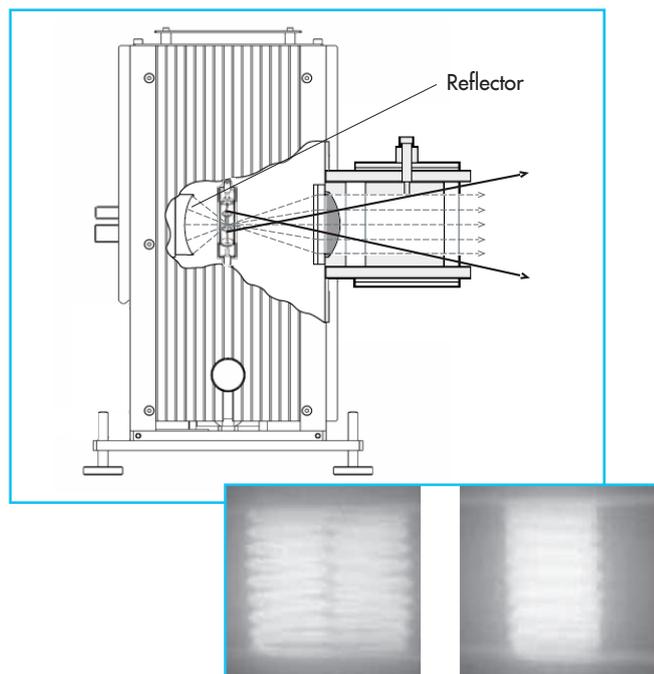
The condenser lenses are made of high-quality UV quartz for transmission down to 200 nm, or optical borosilicate glass (BK7; B270) for applications where output below 360 nm is not required.

For the transmittance of these materials go to „Transmittance of optical materials“ on www.lot-qd.com/lightsources (“Basics”).



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Reflector

An optional spherical reflector assembly with AlMgF2 coating collects additional radiation from the lamp. Lamp and mirror must be adjusted to each other so that the image of the filament lies beside the actual filament (see fig. above). Reproducing an image of the filament on itself must be avoided as it would lead to overheating of the filament, increased vaporization and shorter lamp life.

Lamp adjustment

The housing has precise external lamp adjusters. They let you place the filament where it is needed. This is important while simplifying optical adjustments. In many applications this eliminates the need for readjusting any optics located in the beam after it leaves the housing.

Power supply

The power supply is a highly regulated constant current or constant voltage source. It uses a digital meter to ensure repeatable current or voltage settings. Actually the device is a laboratory power supply providing 0 - 16 A output current and 0 - 60 VDC output voltage. It has no soft-start option, but by gradually increasing the lamp current or voltage to its operating level, it ensures proper lamp operation.

A word on safety

Although compared to arc and deuterium lamps it is only a little, tungsten halogen still produce UV radiation. Especially in the high wattages the ultraviolet radiation is hazardous. Always wear protective eyewear. When imaging the filament to small probes you will even need welding goggles during adjustments because of glare.

Tungsten halogen lamps reach surface temperatures up to 900° C during operation. So the cooling period can last up to 15 minutes! Only then is it safe to touch the lamp.

Ordering information

To build a complete halogen source you will need: Lamp housing, condensing optic, lamp and adapter, power supply and interface. As an option you might choose the rear reflector for more output.

Housing and optics

LSH302	200 - 500 W lamp housing, without optics
LSA300	Adapter for 35 mm condenser optics
LSC215	UV quartz condenser; F/1.3; 35 mm aperture
LSC210	UV quartz condenser; F/1.0; 35 mm aperture
LSC214	IR quartz condenser; F/1.3; 35 mm aperture
LSC216	Glass condenser; F/1.3; 35 mm aperture
LSC315	UV quartz condenser; F/1.3; 50 mm aperture
LSC310	UV quartz condenser; F/1.0; 50 mm aperture
LSC311	Glass condenser; F/1.0; 50 mm aperture
LSC321	Rear reflector assembly

For transmittance of materials go to "Transmittance of optical materials" on www.lot-qd.com/lightsources ("Basics").

Lamps and adapters

Halogen lamps		Required adapter
LSB123/5	250 W halogen lamp	LSA333
LSB124/2	300 W halogen lamp	LSA333
LSB125/2	400 W halogen lamp	LSA333

For lamp specifications go to "Tungsten halogen lamps, specifications" on www.lot-qd.com/lightsources ("Halogen light sources").

Power supply and interface

LSN6016	Power supply for halogen lamps up to 400 W
LSE320	Interface for halogen lamps

For specifications of the power supply go to "Power supplies for halogen lamps" on www.lot-qd.com/lightsources ("Halogen light sources").