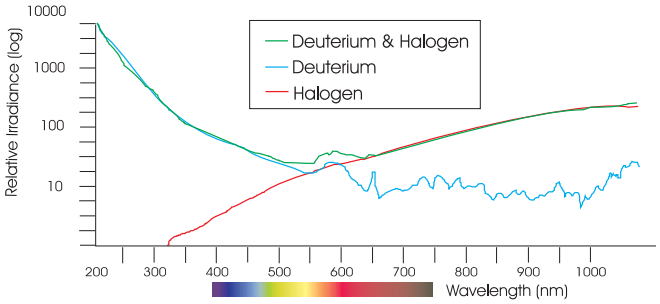
AvaLight-DHc Compact Deuterium Halogen Light Source

The AvaLight-DHc is a combined deuterium-halogen light source, to be used for UV/VIS/NIR applications. The output energy of the AvaLight-DHc is relatively low. The use is therefore recommended in transmission setup with large diameter fibers. The light source emits light from 200 to 2500 nm and has an SMA connector to easily couple into our range of fiber optics. The AvaLight-DHc has an integrated TTL shutter, that can be used for auto-save dark/ lamp off in combination with AvaSoft (extra IC-DB15-2 or IC-DB26-2 needed).

Figure 8 Spectral output of AvaLight-DHc



AvaLight-DHc

Optionally, the AvaLight-DHc can be delivered in Rackmounted version, to be fully integrated in the 19" rackmount or 9.5" desktop housing.
A direct attach cuvette holder CUV-DHc/XE/LED (see section accessories) is available for fluorescence or absorbance measurements.

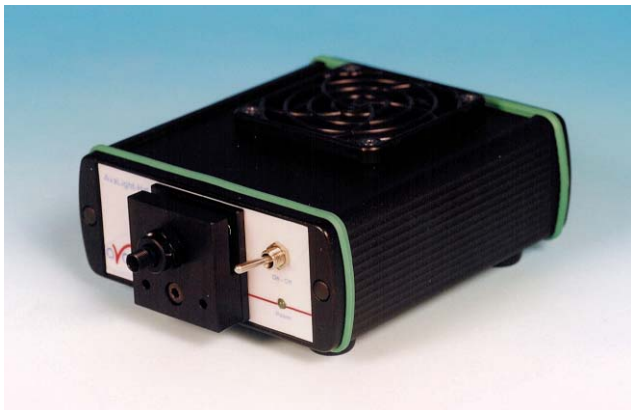
Technical Data

	Deuterium Light Source	Halogen Light Source
Wavelength Range	200 - 400 nm	400 - 2500 nm
Stability	< 1 mAU	< 1 mAU
Warm-up time	8 min	1 min
Drift	< 0.25% / h	< 0.25% / h
Optical Power in 600 µm fiber	0.2 µWatt	7 µWatt
Lamp Lifetime	1000 hours	2000 hours
Temp. Range	5°C - 35°C	
Power Supply	12VDC / 450mA	
Dimensions	175 x 110 x 44 mm	

ORDERING INFORMATION	
AvaLight-DHc	Compact Deuterium Halogen Light Source with TTL Shutter
IC-DB15-2	Interface cable AvaSpec-USB1 platform to AvaLight-DHc-TTL-shutter
IC-DB26-2	Interface cable AvaSpec-USB2 platform to AvaLight-DHc-TTL-shutter
AvaLight-DHc-RM	Rackmount Compact Deuterium Halogen Light Source with TTL Shutter
AvaLight-DHc-B	Compact Deuterium Halogen Replacement Bulb
CUV-DHc/XE/LED	Direct attach cuvette holder for AvaLight-DHc/XE/LED
PS-12V/1.0A	Power supply 100-240VAC/12VDC, 1.0A for AvaLight-DHc

AvaLight-HAL Tungsten Halogen Light Source

AvaLight-HAL



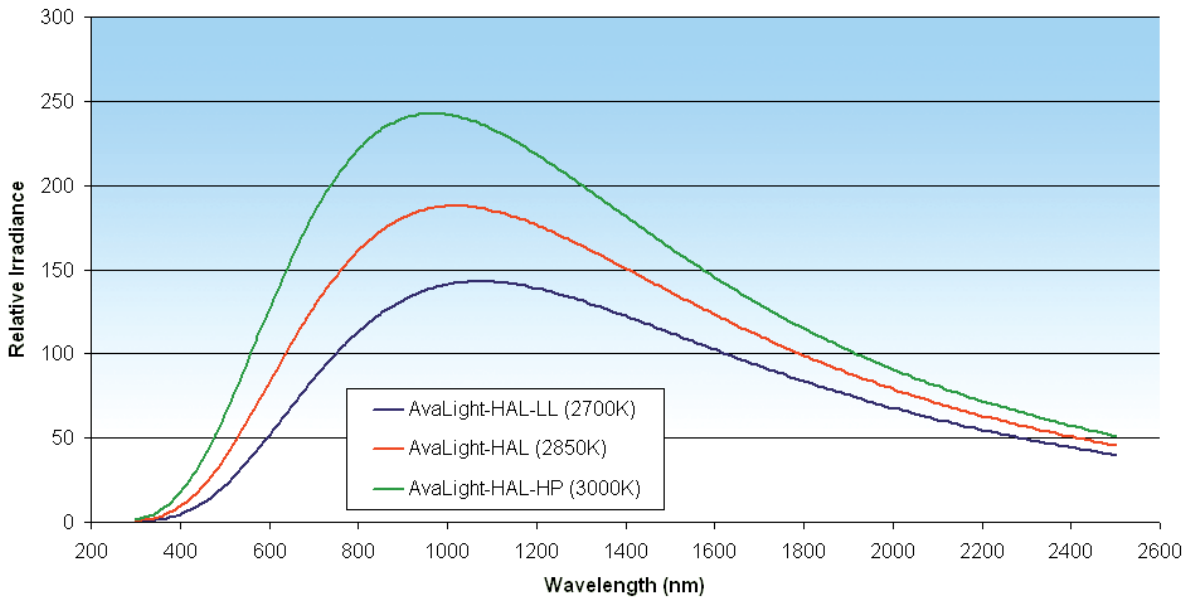
The AvaLight-HAL is a compact stabilized halogen fan-cooled light source that can be used for the visible and the near infrared range. The AvaLight-HAL features adjustable focusing of the SMA connector to maximize light coupling into a fiber or fiber bundle with a diameter of up to 600 µm. A filter slot accepts 1" round or 2" x 2" square filters up to 3 mm thick. The lamp stability is achieved by a current stabilization. A fan regulates the airflow around the heatsink to optimize the operation temperature. The AvaLight-HAL needs an extra PS-24V/1.25A 24 VDC power adapter.

The SMA-connector input into any fiber can be optimized by changing the focus. Bulb replacement is easy. With an internal jumper the optical output energy can be controlled. At "low" setting the source acts as a long life source with over 4000 hrs life time. At "medium" setting the color temperature goes up and the expected life time is about 2000 hrs. The "high" setting gives max output in the blue range, but reduces bulb life time to ca. 1000 hrs (see fig 9).

The Avalight-HAL-S has an internal TTL shutter, that can be controlled from the AvaSpec, so the auto-save dark option in the AvaSoft software can be used (extra IC-DB15-2 or IC-DB26-2 needed).
The filter holder can be easily replaced by a direct attach cuvette holder CUV-HAL (see section accessories) useful for fluorescence or absorbance measurements.
Optionally, the AvaLight-HAL(-S) can be delivered in Rackmounted version, to be fully integrated in the 19" rack-mount or 9.5" desktop housing.

New is the AvaLight-HAL-S-IND halogen light source with a heavy duty industrial power connector and 24V power adapter included. We also offer to implement the new heavy duty industrial connector in your existing AvaLight-HAL-S and power supply as an upgrade.

Figure 9 Spectral output of AvaLight-HAL



Technical Data

	AvaLight-HAL (standard)	AvaLight-HAL (long life)	AvaLight-HAL (high power)
Wavelength Range	360-2500 nm		
Stability	± 0.1%		
Time to stabilize	Ca. 15 min.		
Output to bulb	12.7 VDC/ 0.9A	11.3 VDC/ 0.8A	14.1 VDC/ 1.0A
Bulb Life	2000 hrs	> 4000 hrs	< 1000 hrs
Optical power 200µm fiber	0.5 mWatt	0.35 mWatt	0.7 mWatt
Optical power 600µm fiber	4.5 mWatt	3.2 mWatt	6 mWatt
Optical power 1000µm fiber	10 mWatt	7 mWatt	14 mWatt
Bulb Color Temperature	2.850 K	2.700 K	3.000 K
Power requirement	24 VDC / 1.25A		
Temperature range	0-70 °C		
Dimensions, weight	132 x 110 x 44 mm, 490 grams		

Separate 50x50mm filters to install in AvaLight-HAL (-S)

GL-WG305-3	Separate 50 x 50 x 3 mm long-pass filter > 305 nm
GL-KG3-3	Separate 50 x 50 x 3 mm bandpass filter, transparent > 325 nm and < 700 nm
GL-BG28-3	Separate 50 x 50 x 3 mm bandpass filter, transparent > 360 nm and < 500 nm
GL-GG385-3	Separate 50 x 50 x 3 mm long-pass filter > 385 nm
GL-GG475-3	Separate 50 x 50 x 3 mm long-pass filter > 475 nm
GL-OG515-3	Separate 50 x 50 x 3 mm long-pass filter > 515 nm
GL-OG550-3	Separate 50 x 50 x 3 mm long-pass filter > 550 nm
GL-OG590-3	Separate 50 x 50 x 3 mm long-pass filter > 590 nm
GL-NG9-1	Separate 50 x 50 x 1 mm Neutral Density filter (transmission ca. 10% 400-1100nm)
GL-NG9-2	Separate 50 x 50 x 2 mm Neutral Density filter (transmission ca. 1% 400-1100nm)
GL-NG9-3	Separate 50 x 50 x 3 mm Neutral Density filter (transmission ca. 0.1% 400-1100nm)

More filter types available, please contact us for ordering information

ORDERING INFORMATION	
AvaLight-HAL	10W Tungsten Halogen Lamp, fan-cooled, needs extra PS-24V/1.25A power supply
AvaLight-HAL-S	10W Tungsten Halogen Lamp, fan-cooled, incl. TTL shutter, needs extra PS-24V/1.25A power supply
AvaLight-HAL-S-IND	10W Tungsten Halogen Lamp, fan-cooled, incl. TTL shutter, including industrial connector and PS-24V/1.25A power supply
AvaLight-HAL-S-RM	Rack mounted version of the 10W Tungsten Halogen Lamp, fan-cooled, incl. TTL shutter
IC-DB15-2	Interface cable AvaSpec-USB1 platform to AvaLight-HAL-S
IC-DB26-2	Interface cable AvaSpec-USB2 platform to AvaLight-HAL-S
AvaLight-HAL-B	10W Tungsten Halogen Replacement bulb for AvaLight-HAL, AvaLight-HAL-S
HAL-S-IND-UPGRADE	Upgrade from HAL-S to HAL-S-IND, incl. industrial connector please return with PS-24V/1.25A
CUV-HAL	Direct attach cuvette holder for AvaLight-HAL(-S)
PS-24V/1.25A	Power supply 100-240VAC/24VDC, 1.25A, necessary for AvaLight-HAL

AvaLight-D(H)-S Deuterium-Halogen Light Sources

AvaLight-DH-S

The AvaLight-DH-S is a combined Deuterium and Halogen light source, which can be used for UV/VIS/NIR applications. The AvaLight-DH-S has an SMA905 connector to be used with fiber optic cables and bundles. For optimal coupling an adjustable focus lens assembly is included. The light source supplies a continuous spectrum with high efficiency and highest stability in the UV, visible and near-infrared range from 215-2500 nm.

The Avalight-DH-S was developed based on the shine-through principle, in which the halogen light is focused through a small diameter aperture in the deuterium bulb. The AvaLight-DH-S-BAL has a dichroic beam splitter to give a much more balanced spectrum from 200-2500nm.

For UV only applications the AvaLight-D-S (only Deuterium) source is available.

The standard AvaLight-D(H)-S light sources have a special UV longpass filter (>220nm) implemented to protect the fibers from solarizing. For applications that require a spectral range below 220 nm a Deep UV bulb is available, in which no UV longpass filter is included. For these Deep-UV measurements (from 190nm) the AvaLight-D(H)-S-DUV may be ordered. New is a long-life and more stable version of the Deuterium lamp (AvaLight-D-B-DUV-LL).
For all Deuterium Light Sources solarization resistant fibers (-SR) are recommended, for the DUV lamp special solarization resistant fibers (-SR) are required (see the fiber optic section).

The output of the AvaLight-DH-S is optimized for fibers (bundles) with a diameter up to 600 µm, for larger diameter fiber bundles the AvaLight-DH-S SMA connector focal point can be manually adapted to uniformly fill a larger core diameter fiber cable or bundels.
In all AvaLight-Deuterium sources an integrated TTL-shutter and filter holder for filters of up to 50x50x6.5 mm are implemented.
The Avalight-DH-S internal TTL shutter can be controlled from the AvaSpec, so the auto-save dark option in the AvaSoft-FULL software can be used (extra IC-DB15-2 or IC-DB26-2 needed).

The filter holder can be easily replaced by a direct attach cuvette holder CUV-DHS (see section accessories) useful for fluorescence or absorbance measurements.

Figure 10 Spectral output AvaLight-D-S

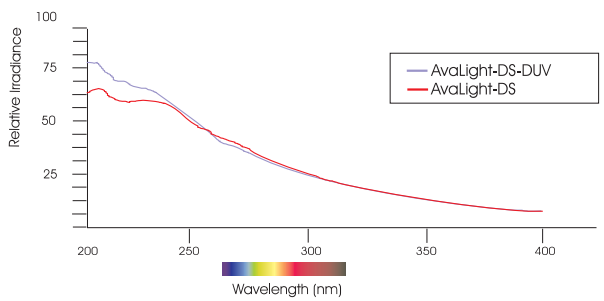
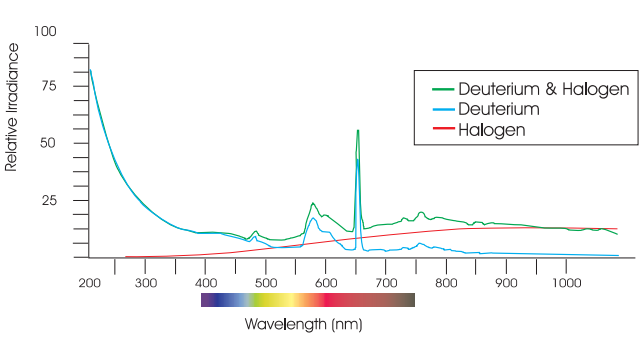


Figure 11 Spectral output AvaLight-DH-S



Technical Data

	Deep UV Deuterium	Deuterium (Standard)	Deuterium (long-life DUV)	Halogen Lamp
Wavelength Range	190-400nm	215-400nm	185-400nm	360-2500nm
Warm-up Time	30 min.	30 min.	30 min.	20 min.
Lamp Power	78W / 0.75A	78W / 0.75A	78W / 0.75A	5W /0.5A
Lamp Lifetime	1000 hrs	1000 hrs	2000 hrs	1000 hrs
Noise (AU)	$2x\ 10^{-4}$	$2x\ 10^{-4}$	$2x\ 10^{-5}$	10^{-4}
Max. drift	± 0.5%/hrs	± 0.5%/hrs	± 0.5%/hrs	±0.1%/hrs
Color Temperature	-	-	-	3000 K
Optical Power in 200µm fiber	11 µW	7 µW	11 µW	43 µW
Optical Power in 600µm fiber	72 µW	61 µW	72 µW	239 µW
Optical Power in 1000µm fiber	206 µW	166 µW	206 µW	354 µW
Power consumption	90 Watt (190Watt for heating D-Lamp 4-5 sec.)			
Power Requirements	100-240VAC 50/60 Hz			
Dimensions / Weight	315 x 165 x 140 mm / ca 5 kg.			

For a table of separate 50x50mm filters to install in AvaLight-D(H)-S see AvaLight-HAL.

ORDERING INFORMATION	
AvaLight-D-S	Deuterium light source, 215-400 nm, incl. TTL shutter, -SR fibers recommended
AvaLight-DH-S	Deuterium-Halogen light source, 215-2500 nm, incl. TTL shutter, -SR fibers recommended
AvaLight-D-S-DUV	Deep UV deuterium light source, 190-400 nm, incl. TTL shutter, -SR fibers needed
AvaLight-DH-S-DUV	Deep UV deuterium-halogen light source, 190-2500 nm, incl. TTL shutter, -SR fibers needed
AvaLight-DH-S-DUV-LL	Deep UV deuterium-halogen light source, long-life 2000 hrs, 190-2500 nm, incl. TTL shutter, -SR fibers needed!
IC-DB15-2	Interface cable AvaSpec-USB1 platform to AvaLight-D(H)S
IC-DB26-2	Interface cable AvaSpec-USB2 platform to AvaLight-D(H)S
AvaLight-D-B	Replacement deuterium bulb for AvaLight-D/AvaLight DH light source
AvaLight-D-B-DUV	Replacement deep UV deuterium bulb for AvaLight-D(H)-S-DUV light source
AvaLight-D-B-DUV-LL	Long-life 2000 hrs. Replacement deep UV deuterium bulb for AvaLight-D/AvaLight DH light source
AvaLight-DH-B	Replacement halogen bulb for AvaLight-DH light source
CUV-DHS	Direct attach cuvette holder for AvaLight-D(H)S