

FiberLight® D₂

UV-Vis Light Source for high measurement consistency

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FiberLight® D₂ is a compact UV-Vis light source designed for mobile spectroscopy applications and all types of handheld devices that require a low power consumption. FiberLight® D₂ has a continuous spectrum covering the whole range from vacuum UV to near Infrared.

The FiberLight® D₂ System is a complete UV-Vis light source, combining a deuterium lamp, with a 0.25 Watt tungsten lamp, a shutter, optical system and a SMA 905 connector. All elements are mounted on a printed circuit board. Both lamps and the shutter can be separately controlled by a TTL signal. FiberLight® D₂ requires an external 12 VDC / 600 mA supply.

It is the ideal light source for applications with limited space in the equipment, whether stationary, portable / handheld or even battery-driven instruments. Low power consumption, small dimensions and ease of operation open up new possibilities for instrument designers.

FiberLight® D₂ is the only light source on the market with such a small size, integrated lamp driver and a smooth spectrum in the whole UV-Vis range. It is easy to integrate and handle. With the flexibility of the product and design Heraeus can meet the customers' needs.

The features of this light source open the way for new solutions in small spectroscopy equipment and UV-Vis optics:

- Compact size
- Low power consumption (6 Watt)
- Low heat dissipation
- Instant lamp ignition
- Cyclic operation
- Extended service life of up to 3 years
- Shutter function
- External control
- Easy coupling to optical fibers, measuring cells and capillaries



Applications

- Laboratory: UV-Vis Spectroscopy
- Environment: Water Quality Monitoring, Waste Water Analysis, Marine Chemistry, Biological Measurements, Air Quality Monitoring
- Process control

Unique: Instant ON and OFF

Cyclic operation with stable light output for high measurement consistency

Lifetime and Cyclic Operation

The guaranteed continuous operating life of a FiberLight® D₂ deuterium lamp is more than 1000 hours. As the lamp is an Electrodeless Discharge Lamp (EDL) with high frequency excitation, it can be switched ON and OFF on demand and can be operated in cycles. The cyclic lamp operation results in an extended service life of up to three years. As an EDL, the number of ignitions does not reduce lifetime. In addition, pulse-to-pulse repeatability is extremely consistent to within 0.1 %.

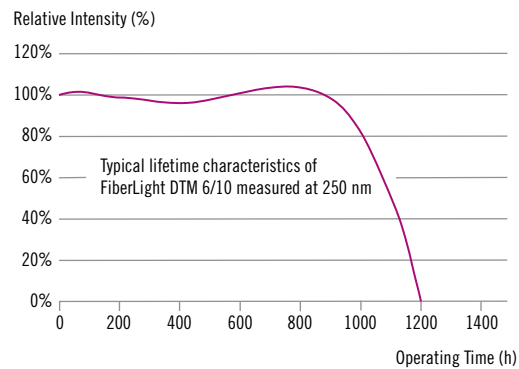
Instant ON and Instant Stability

The FiberLight® D₂ EDL is the only deuterium lamp that can be switched instantly ON and instantly deliver a stable light output. This feature makes it unique among UV light sources. FiberLight® D₂ is therefore the ideal light source in analytical instruments for waste water analysis and other pollution monitoring, where light absorption is measured for only a few seconds and repeated after long intervals. In such measurement devices, FiberLight® D₂ is switched ON only for the short measurement time, while it is OFF for most of the time. Nevertheless, measurement consistency is extremely good because of its pulse-to-pulse repeatability.

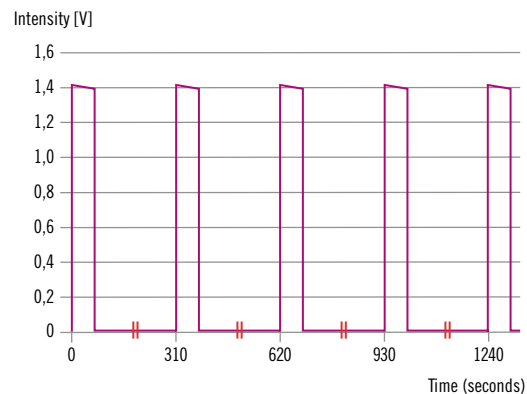
Application Example

To measure nitrate content in waste water, FiberLight® D₂ is switched ON for 10 seconds to measure the nitrate light absorption, and the measurement is repeated every 300 seconds. Measurement consistency is extremely good and under these operating conditions, lamp lifetime can be extended up to 3 years.

FiberLight® D₂ Lamp Life Characteristics







Cyclic Operation



Cyclic operation at 230 nm / measuring time: 300 OFF / 10 ON

FiberLight® D₂

Replacement lamps				
Replacement lamp type	DTL 6/10	DTL 6/10S	DTL 6/50S	DTL 6/50S
Part no.	45006253	80000756	45006266	80001018
				
Aperture size	1.0 mm	1.0 mm	0.5 mm	0.5 mm
Window material	Fused quartz	Fused synthetic silica	Fused quartz	Fused synthetic silica
Spectral distribution with optical fiber	200–1100 nm	185–1100 nm	200–1100 nm	185–1100 nm
Recommended fiber	100–600 µm	100–600 µm	200–1000 µm	200–1000 µm

For an easy integration in your measurement device you can choose different features like:

- Aperture Size
- Window material
- Connection
- Light output
- Shutter

Please contact us to arrange your customized design, optimized for your application.



FiberLight® D₂

Technical Specifications

Technical Specifications

Parameter	FiberLight® D ₂
Spectral distribution	200 – 1100 nm, optional 185 – 1100 nm
Power consumption	6 Watt
Power requirements	12 Vdc / 0.6 Adc
Operating ambient temperature	5 – 35°C
Relative humidity	max. 90%, non condensing
Dimensions (L × W × H)	157 × 55 × 37 mm
Weight	130 g
Shutter	Yes
Tungsten Lamp	Yes
External control	Lamp (D2, W-Lamp) ON/OFF independently, shutter open/close, green LED is lit when the 12 Vdc supply voltage is applied
Light exit	Focused or collimated beam
Optical fiber diameter	100 μm, 200 μm, 600 μm, 1000 μm
Optical fiber connector	SMA 905
Numerical aperture NA	D2 lamp 0.245, W-lamp 0.057
Cooling	Not required

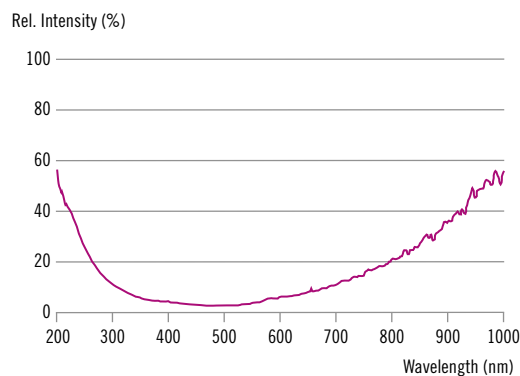
Deuterium Lamp

Spectral distribution	200 – 400 nm line free, optional 185 – 1100 nm
Window material	Fused quartz, fused synthetic silica
Light output (radiant intensity)	$\geq 5 \times 10^{-8}$ W/sr @ 240nm
Stability	$\leq 1 \times 10^{-3}$ AU
Drift	≤ 0.25 %/h
Exciting frequency	250 kHz
Operation voltage	Approx. 1kV
Life*	≥ 1000 h @ 240 nm (50 % intensity loss)

Tungsten Lamp

Spectral distribution	400 – 1100 nm
Voltage	5 Vdc
Current	45 mAdc
Typical Lifetime	≥ 2000 h

Spectral Distribution

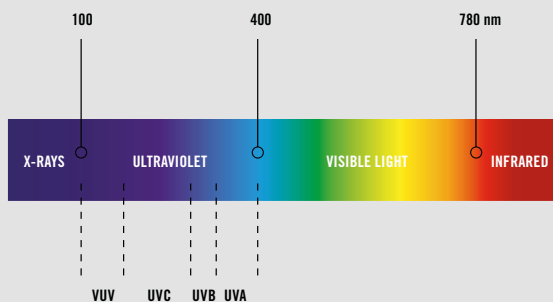


Spectral Distribution of FiberLight® D₂: The spectral emission covers the entire range from 200 nm to 1100 nm; optional extended range from 185 nm to 1100 nm.

The incredible power of light®

Photonics-based solutions from ultraviolet to infrared

Heraeus Noblelight covers the total spectrum of technically usable wavelengths and can help find the optimum light system solution to suit specific processes. Whether you wish to optimize existing applications or win new markets, we offer efficient, well thought-out and long-life solutions that give you a lasting competitive advantage.



Heraeus Noblelight is part of the Heraeus technology group, a globally active family-owned enterprise. Within the Heraeus group, we have direct access to fundamental technologies and high-quality materials such as quartz glass, important precious metals and specialty materials. Rely on the acknowledged Heraeus quality!



High-quality light source solutions for optical and analytical instrumentation

- instrument-specific to match the performance of the instrument
- engineered for a long lifetime, which supports the lowest Cost-of-Ownership in your system
- developed for the highest repeatable precision so users benefit from the most consistent and sensitive analysis



Your analysis will be more consistent and benefit from a higher degree of confidence in chemical detection by using our advanced capabilities.



Functional security and reliability for your analysis

Comprehensive testing of all our light sources ensures they meet specifications in terms of intensity, ignition, voltage and life-time.

Uniquely positioned with the widest range of specialist analytical lamps, Heraeus can supply high quality lamps for all leading instrument brands. Our worldwide sales and dealer network ensures easy and quick lamp delivery.

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