

FiberLight® Portfolio

UV-Vis Light Source for high measurement consistency

FiberLight® Portfolio

Basic Version



Basic FiberLight DTM 6/10

FiberLight 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 has a continuous spectrum covering the whole range from vacuum UV to near Infrared.

The FiberLight 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 requires an external 12VDC/600mA 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.

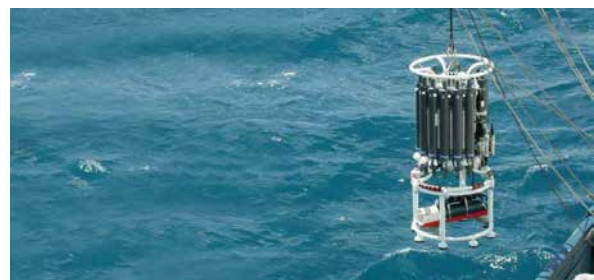
FiberLight is the only light source on the market with such a small size, integrated lamp driver and a smooth spectrum in the whole UV-Vis range. It is easy to integrate and handle. With the flexibility of the product and design Heraeus can meet the customers' needs.

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



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Compact and HighPower Version



Compact FiberLight DTM 6/58

Compact FiberLight

The new Compact FiberLight Module is an UV-Vis light source covering the whole spectral range from vacuum UV to near Infrared.

With the “Sandwich”-Assembling of the printed circuit boards we are for the first time able to offer our customers an even smaller size than our Basic Module with a combination of deuterium and tungsten lamp. All elements are mounted on two stacked printed circuit boards to be driven by an external 12Vdc/600mA power supply.



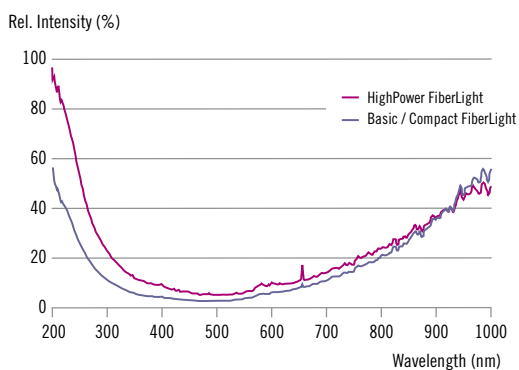
HighPower FiberLight DTM 10/50S

HighPower FiberLight

A 10W HighPower FiberLight version is now available, offering double UV light output and similar compact size.

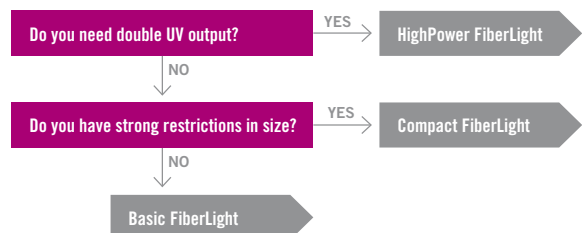
Higher power means shorter integration time for faster response and lower detection limits; while still small size suitable for portable operation.

Comparison of Spectral Distribution



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

Choose your FiberLight Module



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 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 %.

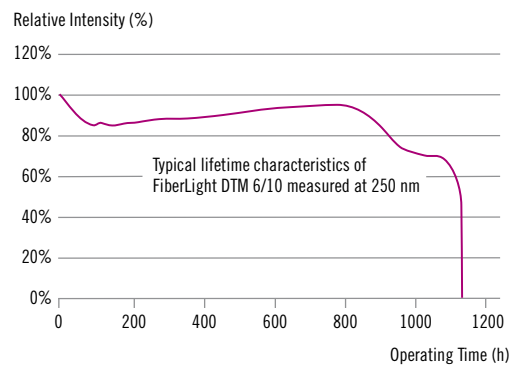
Instant ON and Instant Stability

The FiberLight 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 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 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.

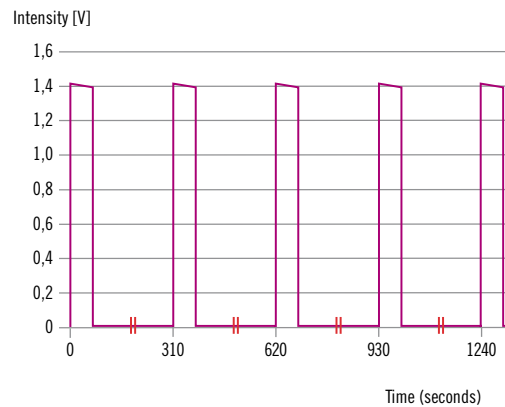
Application Example

To measure nitrate content in waste water, FiberLight 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 Lamp Life Characteristics



Cyclic Operation










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

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Technical Specifications

Technical Specifications

Parameter	Basic FiberLight DTM 6/10, 6/50	Compact FiberLight DTM 6/58	HighPower Fiber Light DTM 10/50S
			
Spectral distribution	200 – 1100 nm, optional 185 – 1100 nm		185 – 1100 nm
Power consumption	6 Watt		12 Watt
Power requirements	12 Vdc / 0.6 Adc		12 Vdc / 1.2 Adc
Operating ambient temperature	5 – 35°C		5 – 35°C
Relative humidity	max. 90%, non condensing		max. 90%, non condensing
Dimensions (L x W x H)	157 x 55 x 37 mm	123 x 36 x 38 mm	161 x 58 x 51.5 mm
Weight	130 g	104 g	230 g
Shutter	Yes		Yes
Tungsten Lamp	Yes		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		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		Focused
Optical fiber diameter	200 µm, 400 µm, 600 µm		200 µm, 400 µm, 600 µm
Optical fiber connector	SMA 905		SMA 905
Numerical aperture NA	D2 lamp 0.245, W-lamp 0.057		D2 lamp 0.245, W-lamp 0.057
Cooling	Not required	External cooling recommended	Forced, fan on-board
Deuterium Lamp			
Spectral distribution	200 – 400 nm line free, optional 185 – 1100 nm		185 – 400 nm line free
Window material	Fused quartz, fused synthetic silica		Fused synthetic silica
Light output (radiant intensity)	$\geq 5 \times 10^{-8}$ W/sr @ 240nm		$\geq 10 \times 10^{-8}$ W/sr @ 240nm
Stability	$\leq 1 \times 10^{-3}$ AU		To Be Determined
Drift	≤ 0.25 %/h		To Be Determined
Exciting frequency	250 kHz		250 kHz
Operation voltage	Approx. 1kV		Approx. 1kV
Life*	≥ 1000 h @ 240 nm (50% intensity loss)		≥ 1000 h @ 240 nm (50% intensity loss)
Tungsten Lamp			
Spectral distribution	400 – 1100 nm		400 – 1100 nm
Voltage	5 Vdc		5 Vdc
Current	45 mAdc		45 mAdc
Typical Lifetime	≥ 2000 h		≥ 2000 h

Replacement lamps					
For FiberLight type	Basic/ Compact	Basic/ Compact	Basic/ Compact	Basic/ Compact	HighPower
Replacement lamp type	DTL 6/10	DTL 6/10S	DTL 6/50S	DTL 6/50S	DTL 10/50S
Part no.	45006253	80000756	45006266	80001018	80088565
					
Aperture size	1.0 mm	1.0 mm	0.5 mm	0.5 mm	0.5 mm
Window material	Fused quartz	Fused synthetic silica	Fused quartz	Fused synthetic silica	Fused synthetic silica
Spectral distribution with optical fiber	200–1100 nm	185–1100 nm	200–1100 nm	185–1100 nm	185–1100 nm
Recommended fiber	400–600 µm	400–600 µm	200–600 µm	200–600 µm	200–600 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.

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