



FiberLight® Miniature UV-Vis Light Source for Mobile Spectroscopy and Online Process Control

FiberLight®

Miniature UV-Vis Light Source



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 UV-Vis light source. 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 with a shine-through design deuterium lamp, a 0.25 Watt tungsten lamp, shutter, optical system and SMA 905 connector. All elements are mounted on a printed circuit

board driven by an external 12 Vdc/600 mA power supply. Both lamps and the shutter can be separately controlled by a TTL signal.

FiberLight is powered from an external supply; this makes it an ideal light source for applications with limited space in the instrument, portable instruments or battery-operated equipment. Its small dimensions and ease of operation open up new possibilities for instrument designers.



The features of this light source open the way for new solutions in small spectroscopy equipment and UV 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
- Process control
- Stand-alone light source
- Calibration



HighPower FiberLight DTM 10/50

Spectral Distribution of FiberLight

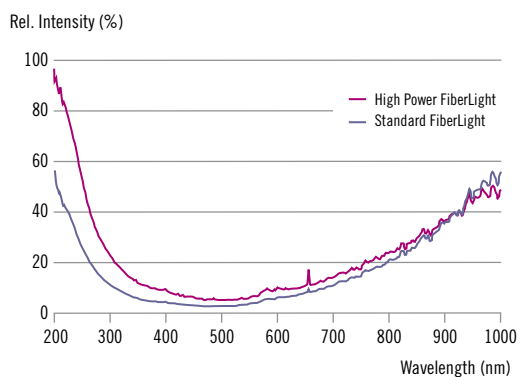
The spectral emission covers the entire range from 200 nm to 1,100 nm; optional extended range from 185 nm to 1,100 nm.

HighPower FiberLight

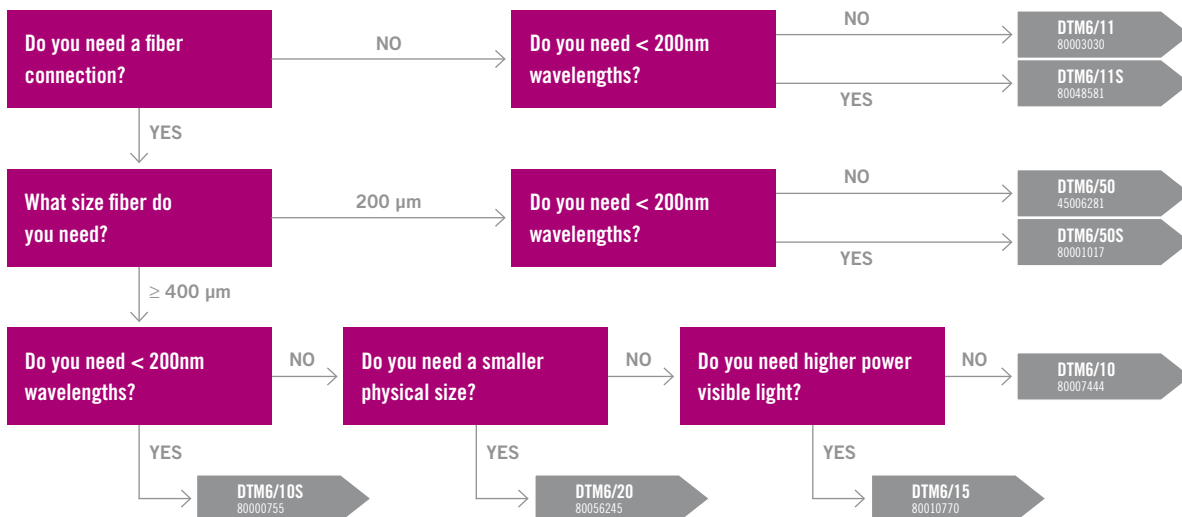
A 10W High Power FiberLight version is now available, offering double UV light output and similar compact size.

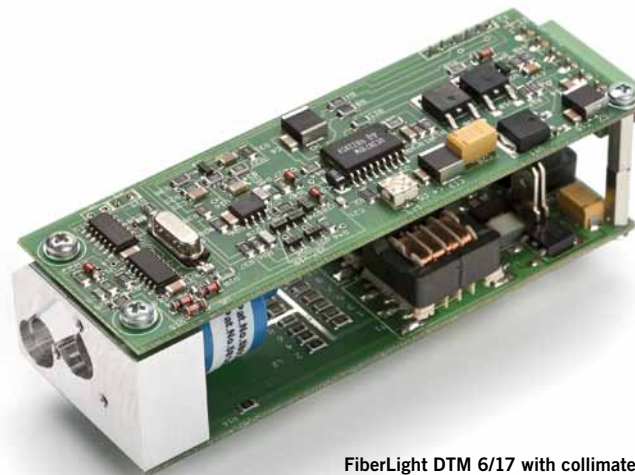
Higher power means shorter integration time for faster response and lower detection limits; while still small size suitable for portable operation.

Comparison of Spectral Distribution



Select your FiberLight System





FiberLight DTM 6/17 with collimated beam

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 %.

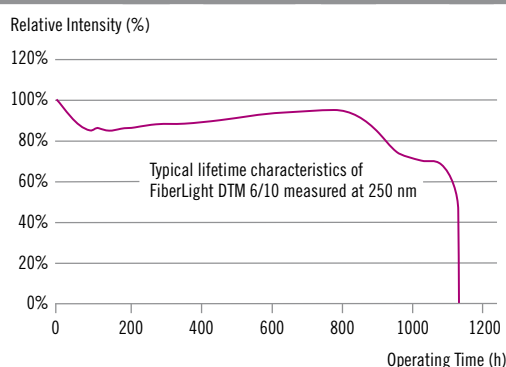
Instant ON and Instant Stability

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 pollution monitoring, where light absorption is measured for only a few seconds and repeated after long intervals. In such monitoring, 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

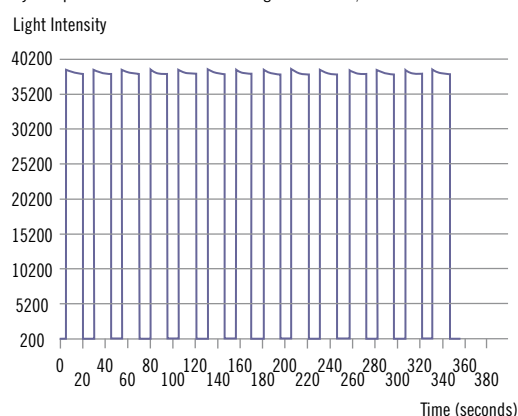
To measure nitrate content in waste water, FiberLight is switched ON for 2 seconds to measure the nitrate light absorption, and the measurement is repeated every 60 seconds. Measurement consistency is extremely good and under these operating conditions, lamp lifetime can be extended up to 3 years.

FiberLight Lamp Life Characteristics



Cyclic Operation

Cyclic operation at 230 nm / measuring time: 18 sec; off = 10 sec



Technical Specifications





Parameter	Standard FiberLight DTM 6/10, 6/11, 6/17, 6/20, 6/50	High Power FiberLight DTM 10/50 S
		
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 × 55 × 37 mm DTM 6/17: 105 × 36 × 35 mm, DTM 6/20: 123 × 36 × 35 mm	161 × 58 × 51.5 mm
Weight	130 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	forced, fan on-board
Deuterium Lamp		
Spectral distribution	200–400 nm line free	200–400 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	$\leq 0,25$ %/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)
Power consumption	approx. 5 Watt	approx. 10 Watt
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

- 2 optical configurations are available: Focused Beam (for connection to an optical fiber) or Collimated Beam (quasi parallel light).
- 6W Standard and 12W High Power version now available, with 2×light output and similar compact size.

- PCB layout can be designed to suit your compact instrument footprint.

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

Replacement lamps

For FiberLight type	DTM6/10	DTM 6/10S	DTM 6/50	DTM 6/50S
Replacement lamp type	DTL 6/10	DTL 6/10S	DTL 6/50	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	400–600 µm	400–600 µm	200–600 µm	200–600 µm

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