

# SCHOTT® FLM 4

Super-luminosity LED fiber lighting module, CT 5700K, CRI 70, **max. 2A LED current**



**SCHOTT® FLM 4-2A**

The SCHOTT® LED fiber lighting module - FLM - platform has been specifically developed for most efficient coupling of LED light into small-size fiber optic bundles. This makes the SCHOTT® FLM 4 an excellent choice for medical applications, where smaller light guides with active diameters from 3.0 to 5.0 mm are commonly used.

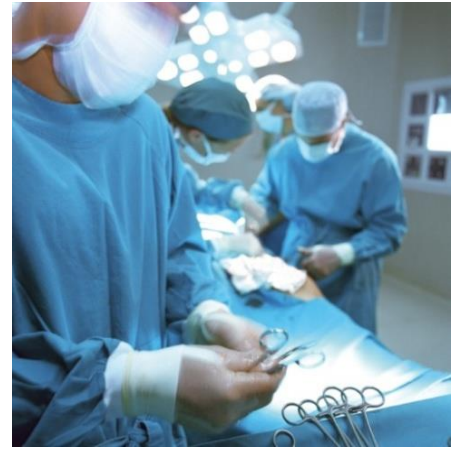
This 2A version was specially designed for a small footprint of the unit. Utilizing high brightness LEDs combined with an optimized optical focusing system the SCHOTT® FLM 4 generates app. 400lm out of a typical SCHOTT® universal light guide at a medical suitable color temperature of 5700K and a typical CRI of 70. Customized versions with higher Color Rendering Indexes (CRI) as well as different color temperatures (CT) are available on request\*.

The encapsulated SCHOTT® FLM - containing LEDs and focusing optics - has an integrated fan to ensure optimum cooling for long lifetime. The small footprint of the module allows easier integration into end-users systems.

The separate control electronics monitors the LEDs for overheating condition, ensuring the system to have a long lifetime. Driven by constant current the light intensity of the LEDs can be continuously dimmed between 0 and 100% - while being flicker-free.

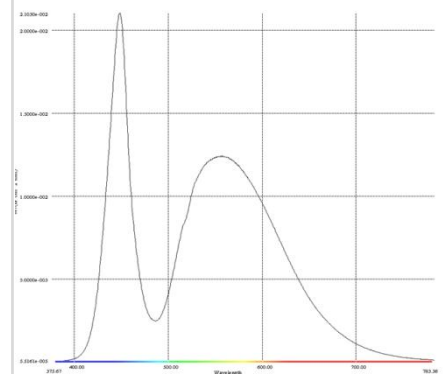
The external triggering option can be utilized to make fast movements visible - a feature important for applications in the ENT environment to make movement of vocal chords visible.

\* Customized versions are only made upon customer request and require minimum order and call-off quantities!



## Spectrum

Spectrum of the SCHOTT® FLM 4, measured with SCHOTT® Universal Light Guide\*)



\*) PURAVIS® glass optical fiber GOF70, active diameter 4.8 mm, input hot-fused, length 2300 mm

## Fiber Optic Light Guides

The SCHOTT® FLM 4 illuminates active light guide diameter between 3.0 – 5.0 mm.

Smaller diameter require an optimized optical system. Hot-fused input ends can increase overall light output by 15%.

Please contact your SCHOTT representative for further information.

**SCHOTT**  
glass made of ideas

## Technical Data for SCHOTT® FLM 4-2A

### Optical Data

LED Type	White High Brightness LED
Color Temperature CCT	<b>5700 Kelvin (initial value)</b>
Color Rendering Index CRI	Approximately 70
Typical Luminous Flux	<b>900lm in Focal Area</b> <b>400 lm out of SCHOTT® Universal Light Guide (4.8 mm, 2300 mm)</b>
Aperture angle	65° in 5 mm focal diameter
Average LED Lifetime	30,000 hours (Luminous Flux reduced to 70% of Maximum)
Please note	LEDs are subject to certain manufacturing variations and can change their intensity and chromaticity depending on the type, power rate, life time and environmental conditions.

### Electronic Data /PCB

Operating Voltage / Current	12 V DC +2V/-1V DC, 2 A max.
LED Safety/redundancy	Serial chain
Power Consumption	72 watt max
Analog Input Voltage	0 - 5 V
Range for Dimming	0 - 100 %
Applicable Potentiometer for Dimming	10 KΩ
Method of LED Dimming	Only for analog dimming: Linear Current Control 0-4000 mA / LED
External Trigger Input	5 Hz – 1.2 KHz, var. pulse/pause ratio
Interface/PCB	10-pin terminal connector socket for dimming, overheating protection, external trigger signal, 2-pin connector socket for power supply

### Dimensions

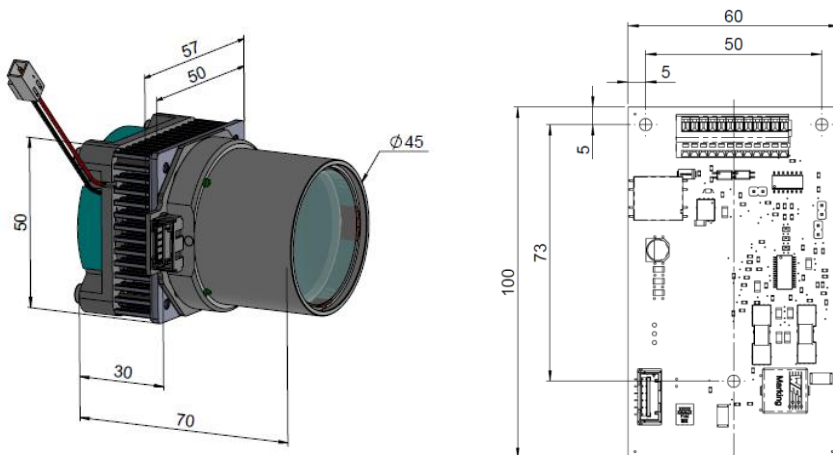
Optics Module / Fan	Diameter 45 mm / 50mm x 50 mm, Length 70 mm
Focal Distance	16 mm from front plane of metal housing
Weight	Approximately 230 g
PCB dimension (L x W)	100 mm x 60 mm

### Operating Conditions

Ambient Temperature	+ 5 - + 35 °C
Relative Humidity	85% max. (non-condensing)

### Transportation and Storage

Temperature	-20°C - +70 °C
Relative Humidity	10 ... 95 % (non-condensing)



All dimensions in mm

### Part Numbers

<b>SCHOTT® FLM 4-2A Set</b> <b>5700K, CRI 70, max. 2A</b> <b>LED current</b> Optics Module with fan, Control PCB and connection cable	162 7291
SCHOTT® Universal Light Guide, grey (4.8 mm, 2300 mm, other lengths and colors available)	130 5027

All specifications are subject to change without prior notice. This datasheet or any extracts thereof may only be used in other publications with express permission of SCHOTT. © SCHOTT AG

Lighting and Imaging  
**SCHOTT AG**  
Hattenbergstrasse 10  
55122 Mainz  
Germany  
Phone: +49 (0) 6131/66-7844  
Fax: +49 (0) 6131/66-7850  
lightingimaging@schott.com  
www.schott.com/lightingimaging

**SCHOTT**  
glass made of ideas