

# 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.

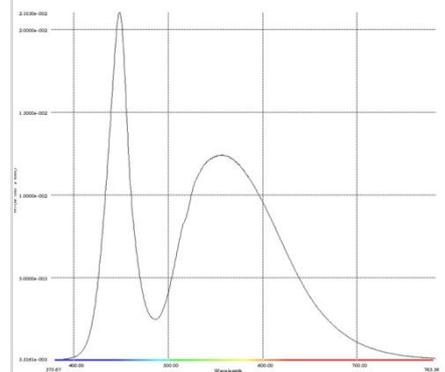
The external triggering option can be utilized to make fast movements visible - a feature important for applications in the ENT environment to make movement of vocal chords visible.

\* 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

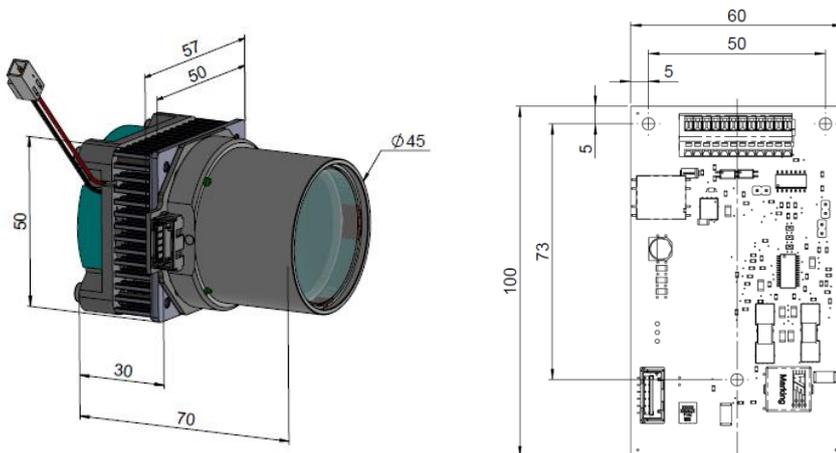
Optics Module / Fan	Diameter 45 mm / 50mm x 50 mm, Length 70 mm
Focal Distance	16 mm from front plane of metal housing
Weight	Approximately 230 g
PCB dimension (L x W)	100 mm x 60 mm

### 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