

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.

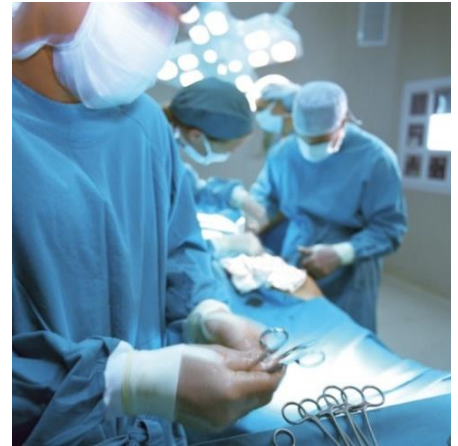
This 2A version was specially designed for a small footprint of the unit. Utilizing high brightness LEDs combined with an optimized optical focusing system the SCHOTT® FLM 4 generates app. 400lm out of a typical SCHOTT® universal light guide at a medical suitable color temperature of 5700K and a typical 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.

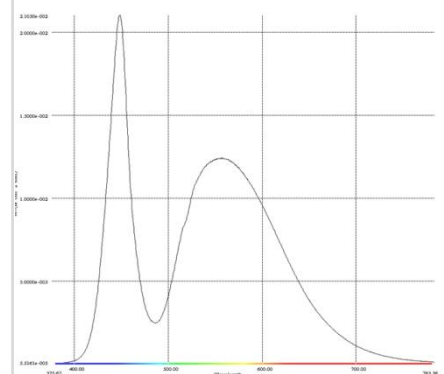
The external triggering option can be utilized to make fast movements visible - a feature important for applications in the ENT environment to make movement of vocal chords visible.

* 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.

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Technical Data for SCHOTT® FLM 4-2A

Optical Data

| | |
|---------------------------|---|
| LED Type | White High Brightness LED |
| Color Temperature CCT | 5700 Kelvin (initial value) |
| Color Rendering Index CRI | Approximately 70 |
| Typical Luminous Flux | 900lm in Focal Area 400 lm out of SCHOTT® Universal Light Guide (4.8 mm, 2300 mm) |
| 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

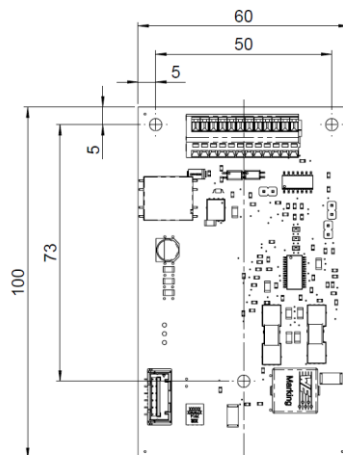
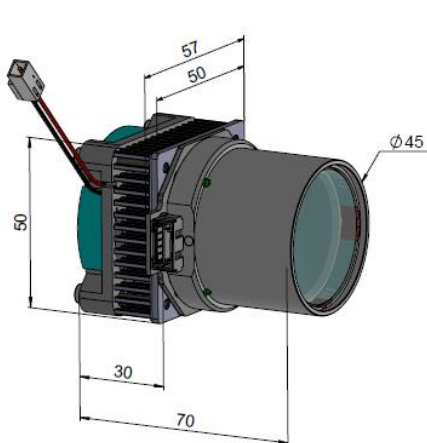
| | |
|-----------------------|---|
| Optics Module / Fan | Diameter 45 mm / 50mm x 50 mm, Length 70 mm |
| Focal Distance | 16 mm from front plane of metal housing |
| Weight | Approximately 230 g |
| PCB dimension (L x W) | 100 mm x 60 mm |

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

| | |
|--|----------|
| SCHOTT® FLM 4-2A Set 5700K, CRI 70, max. 2A LED current 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

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