

**SCHOTT**  
glass made of ideas

**KL Series**

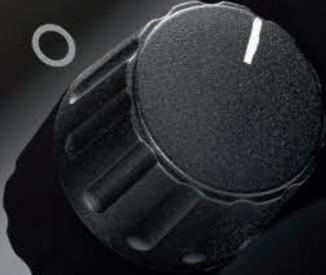
Fiber optic illumination  
for stereo microscopy

Eco

**2800 K**



0 100



0

**SCHOTT**

**KL 1500 HAL**



SCHOTT is a leading international technology group in the areas of specialty glass and glass-ceramics. With more than 130 years of outstanding development, materials and technology expertise we offer a broad portfolio of high-quality products and intelligent solutions that contribute to our customers' success.

Light is a key element in stereo microscopy. By using the correct illumination it can make hidden details visible and enhance the contrast of the objects to distinguish the feature of interest. A wide variety of tasks from life science to industrial applications require very different illumination techniques. SCHOTT is able to offer the full range of fiber optic and LED lighting products with an extensive range of accessories to meet your specific needs.



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## KL 300 LED

### Compact LED light source for fiber optics

The KL 300 LED offers simple operation combined with excellent value for money. It is an innovative fiber optic light source that uses cold light to illuminate all types of objects in life science and industrial applications.

Employing state of the art technology, SCHOTT has developed and designed a single LED driven light source to provide an attractive alternative to conventional halogen cold light sources.

The brightness is equivalent to a 30-watt halogen lamp and therefore ideal as a standard illumination system for the requirements of routine inspections and education.

Due to its smart design, the KL 300 LED can be mounted to any microscope stand or pillar. The dimming control is ergonomically placed to the focus control of the microscope. As the chosen LED has a long lifetime of at least 50,000 hours it is maintenance free for the user and avoids service and downtime costs. The ripple free illumination is perfect for digital imaging applications. The color temperature of 5,600 K of the emitted neutral white light does not change when the light source is dimmed.

The KL 300 LED combines all advantages of LED light with the illumination through fiber optics: All types of light guides in the KL 200 series can be connected to the KL 300 LED. This allows full flexibility to realize all common illumination techniques.

Like all KL light sources the KL 300 LED is designed for a wide range of power supply (100-240 V; 50-60 Hz). It has been approved and certified as laboratory equipment and is in compliance with the CE regulations.

#### Features

- 80 lm lightflux
- No fan, silent operation
- Compact ergonomical design
- Mountable direct to the stand or pillar
- Wide range power supply with international clip plug system

The KL product line offers modular fiber optic illumination for stereo microscopy so that is always matches to the desired application. Therefore the SCHOTT KL product line is not just an accessory but a professional illumination system for even specialized tasks.



## KL 1600 LED

### Standard LED light source for fiber optics

The KL 1600 LED is an innovative fiber optic light source which uses cold light to illuminate all types of objects in industrial and life science applications. SCHOTT has developed and designed a multiple LED driven light source to provide an attractive alternative to conventional halogen cold light sources. The brightness is equivalent to a 150-watt halogen lamp and therefore ideal as a powerful illumination system for the requirements of all modern stereo microscopes.

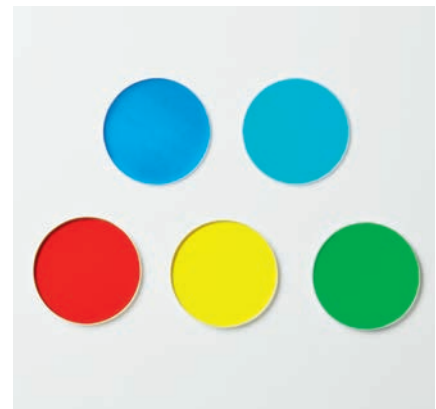
Due to its slim design, the KL 1600 LED can be placed close to microscope stand or pillar. The dimming control is than ergonomically placed to the microscope. As the chosen LEDs have a long lifetime of at least 50,000 hours it is maintenance free for the user and avoids service and downtime costs. The ripple free illumination is perfect for digital imaging applications and the color temperature of 5,600 K of the emitted neutral white light does not change when the light source is dimmed.

The KL 1600 LED combines all advantages of LED light with illumination through fiber optics: All different types of light guides of the KL 1500 series can be connected to the KL 1600 LED. This allows the full flexibility to realize all common illumination techniques.

Like all KL light sources the KL 1600 LED is designed for a wide range of power supply (100-240 V; 50-60 Hz). It has been approved and certified as laboratory equipment and is in compliance with the CE regulations.

#### Features

- 680 lm lightflux
- Slim ergonomical design
- Continuous dimming
- Filter slider
- Wide range power supply





## KL 2500 LED

### Advanced LED light source for fiber optics

The KL 2500 LED is an innovative fiber optic light source which uses cold light to illuminate all types of objects in industrial and life science applications. The brightness is equivalent to a 250-watt halogen lamp and therefore ideal as a powerful illumination system for the requirements of state of the art high end stereo microscopes.

The extra fine dimming and display fits to the highest optical magnifications and far advanced applications. As the chosen LEDs have a long lifetime of at least 50,000 hours it is maintenance free for the user and avoids service and downtime costs.

The ripple free illumination is perfect for digital imaging applications and the color temperature of 5,600 K of the emitted neutral white light does not change when the light source is dimmed. In addition all features can be externally controlled via USB from the microscope software.

The KL 2500 LED combines all advantages of LED light with the advantages of illumination through fiber optics: All different types of light guides of the KL 1500 series can be connected to the KL 2500 LED. It enables the full flexibility to realize all common illumination techniques. Like all KL light sources the KL 2500 LED is designed for a wide range of power supply (100-240 V; 50-60 Hz). It has been approved and certified as laboratory equipment and is in compliance with the CE regulations.

#### Features

- 1100 lm lightflux
- Slim ergonomical design
- Extra fine dimming
- Filter slider
- LCD Display
- Controllable via USB
- Wide range power supply

## KL 1500 HAL

### Professional halogen light source for fiber optics

SCHOTT has developed and designed a light source with the full 150 Watt halogen spectrum CRI 100 offering the best performance when it comes to color critical measurements in life science and industrial applications.

With the classic design the KL 1500 HAL can replace all SCHOTT halogen light sources of the last decades. A switch able optics ensures uniform, high intensity illumination even when using light guides with a small diameter.

An ultra low noise fan and an optimized airflow facilitate relaxed working conditions. The LCD display with various parameters enables comfortable operations control and reproducible results. The ripple free illumination is perfect for digital imaging applications.

The KL 1500 HAL combines all features with the advantages of illumination through fiber optics: All different types of light guides of the KL 1500 series can be connected to the KL 1500 HAL. This allows the full flexibility to realize all common illumination techniques.

Like all KL light sources the KL 1500 HAL is designed for a wide range of power supply (100-240 V; 50-60 Hz). It has been approved and certified as laboratory equipment and is in compliance with the CE regulations.

#### Features

- 600 lm lightflux
- Switch able optics
- Sensor interlock at the light guide socket
- Ultra low noise fan
- LCD Display

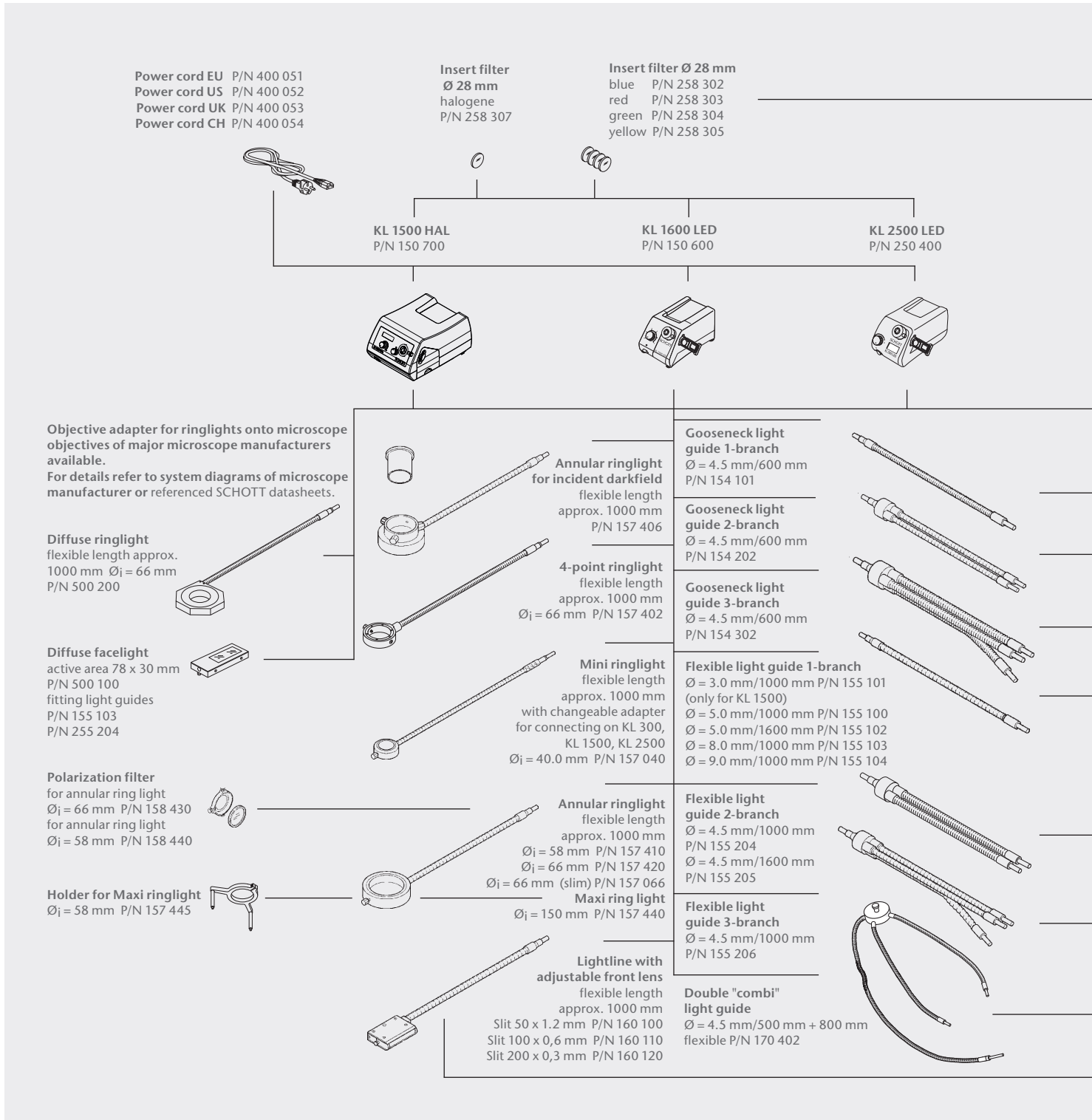






# System diagram

KL 1600 LED | KL 2500 LED | KL 1500 HAL | KL 2500 LCD



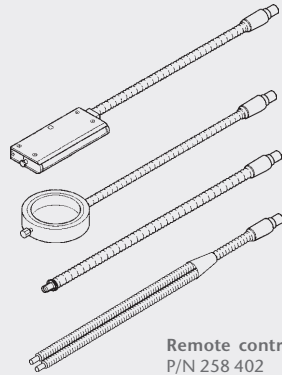
**Lightline with adjustable focusing optics and tilt angle, non-slip**

length of flexible bundle 1000 mm  
Line 300 x 0.3 mm P/N 260 130  
length of flexible bundle 1500 mm  
Line 300 x 0.3 mm P/N 260 135

**Annular ringlight "Jumbo"**  
Ø<sub>i</sub> = 66 mm P/N 257 420

**Flexible light guide**  
Ø = 15 mm/1000 mm P/N 250 102  
Ø = 15 mm/1500 mm P/N 250 103

**Flexible light guide**  
2-branch, randomized  
Ø = 9 mm/1000 mm P/N 255 204



Remote control  
P/N 258 402

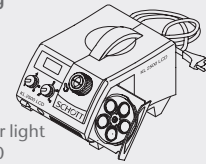
**Polarization filter for focusing lens, twistable for light guides**  
Ø = 12/15 mm P/N 258 205

**Focusing lens without filter for light guides**  
Ø = 15 mm P/N 258 210

**Electronic accessories Y-piece for simultaneous operation of tilt switch (258 403) and remote control (258 402)**  
Cable extension P/N 258 400  
P/N 258 401

Tilt switch  
P/N 258 403

**KL 2500 LCD**  
230 V P/N 250 200  
120 V P/N 250 201



**Focusing lens and filter set for light guides**  
up to Ø = 5 mm; blue, red, green, yellow P/N 158 200

**Polarization filter for focusing lens**  
P/N 158 205

**Daylight filter for focusing lens**  
P/N 158 211

**Halogen filter for focusing lens**  
P/N 158 207

**Focusing lens for light guides**  
up to Ø = 5 mm P/N 158 210

**Holder for focusing lens**  
P/N 158 341

**Transmitted light stage**  
Ø 84 mm, for flexible light guide up to Ø 5 mm  
P/N 122 150

**Polarizing filter attachment for TL**  
P/N 158 500

**Polarization filter for focusing lens, twistable for light guides**  
Ø = 8 mm P/N 158 206

**Focusing lens without filter for light guides**  
Ø = 8 mm P/N 158 215



**Adapter for combi light guide**  
Ø 32 mm column  
P/N 158 402

**Insert filter Ø 28 mm for fluorescence excitation**  
blue λ = 484 nm P/N 258 313  
green λ = 515 nm P/N 258 314

**Insert filter Ø 28 mm daylight filter**  
P/N 258 306

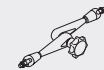
**Holder with M6 thread**  
P/N 157 430

for slit ringlight  
Ø<sub>i</sub> = 58 mm, Ø<sub>i</sub> = 66 mm

for 4-point ringlight  
Ø<sub>i</sub> = 30 mm, Ø<sub>i</sub> = 66 mm

for flexible light guide  
Ø = 12 mm, Ø = 15 mm

**Holder with M6 thread**  
for flexible light guide with 3 x M6 connecting threads  
up to Ø = 5 mm P/N 158 330  
for flexible light guide Ø = 8 mm P/N 158 335



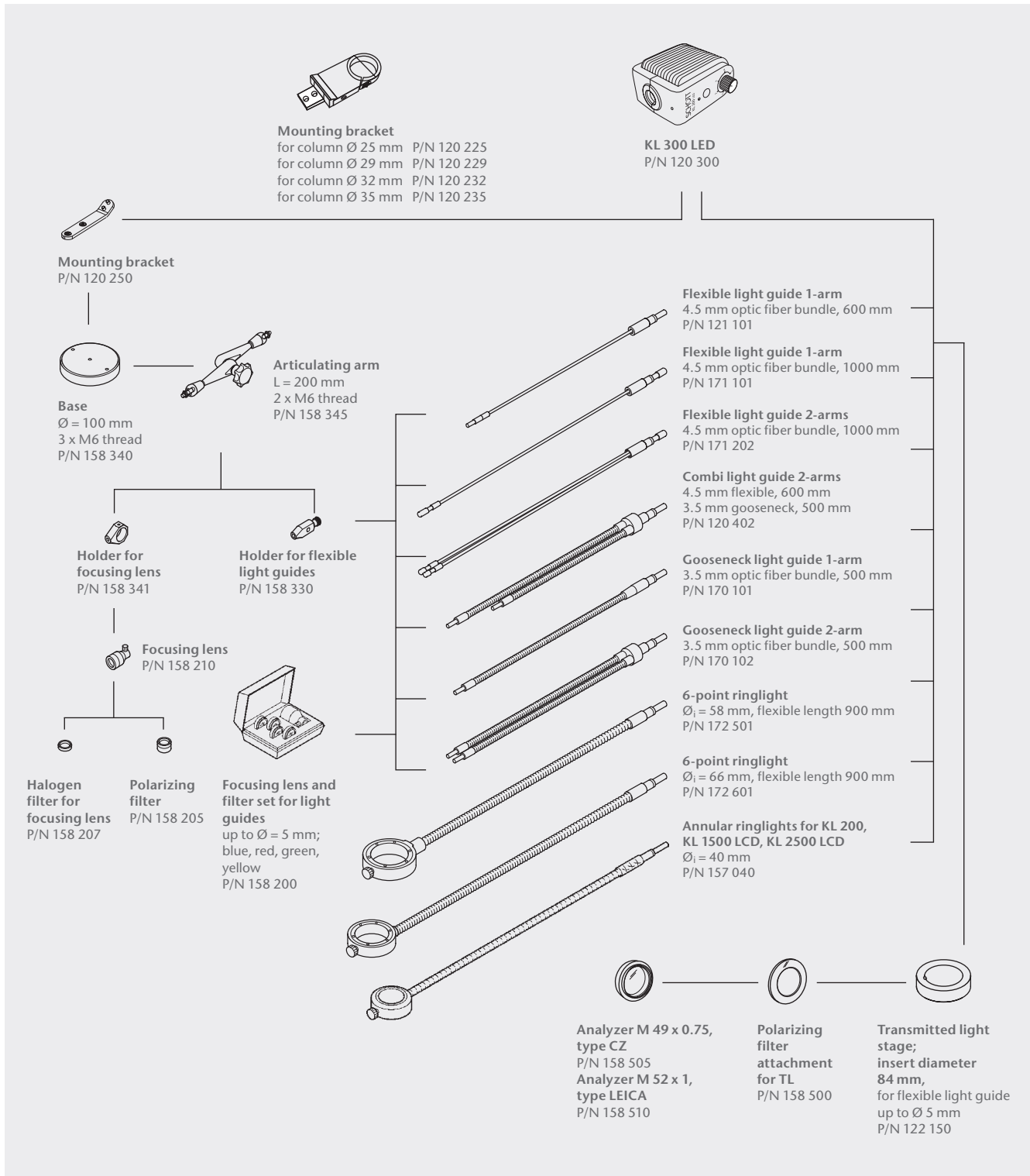
**Articulating arm with 2 x M6 connecting threads**  
P/N 158 345



**Base for articulating arm with 3 x M6 connecting threads**  
P/N 158 340

# System diagram

## KL 300 LED



## KL light sources at a glance

Feature	KL 300 LED	KL 1600 LED	KL 2500 LED	KL 1500 HAL
Lamp type	LED	LED	LED	HAL
Lightflux (lm)	80	680	1100	600
Max. active light guide Ø (mm)	6	9	9	9
Wide range power supply	●	●	●	●
Continuous dimming	●	●	●	●
Extra fine dimming			●	
LCD display			●	●
Filter slider		●	●	●
Fan cooling		●	●	●
USB port			●	



## Accessories



- 1 | Gooseneck 2-arms
- 2 | 4-Point-Ringlight
- 3 | Lightlines
- 4 | Base Stand
- 5 | Holders
- 6 | Flexible light guide 1-arm
- 7 | Flexible light guide 3-arm
- 8 | Focussing lens and filter set

Choose from our extensive range of light guides and accessories.  
These are only some examples.



## Puravis® eco-friendly glass optical fibers

The heart of all fiber optic light guides

In all its microscopy light guides, SCHOTT uses the new environmentally friendly glass optical fibers PURAVIS®. Not just the fibers themselves, but also the entire proprietary manufacturing process are lead free and avoid the use of arsenic and antimony. Due to superior physical and chemical properties, the new PURAVIS® glass optical fibers provide a high performance, superior longevity, improved transmission in the near UV and outstanding transmission of white light.

This new milestone in the development of environmentally friendly technologies will not only benefit the environment, but also our customers.

### Improved Properties

- Environmentally friendly
- Superior optical performance
- Long-term stability

Lighting and Imaging

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