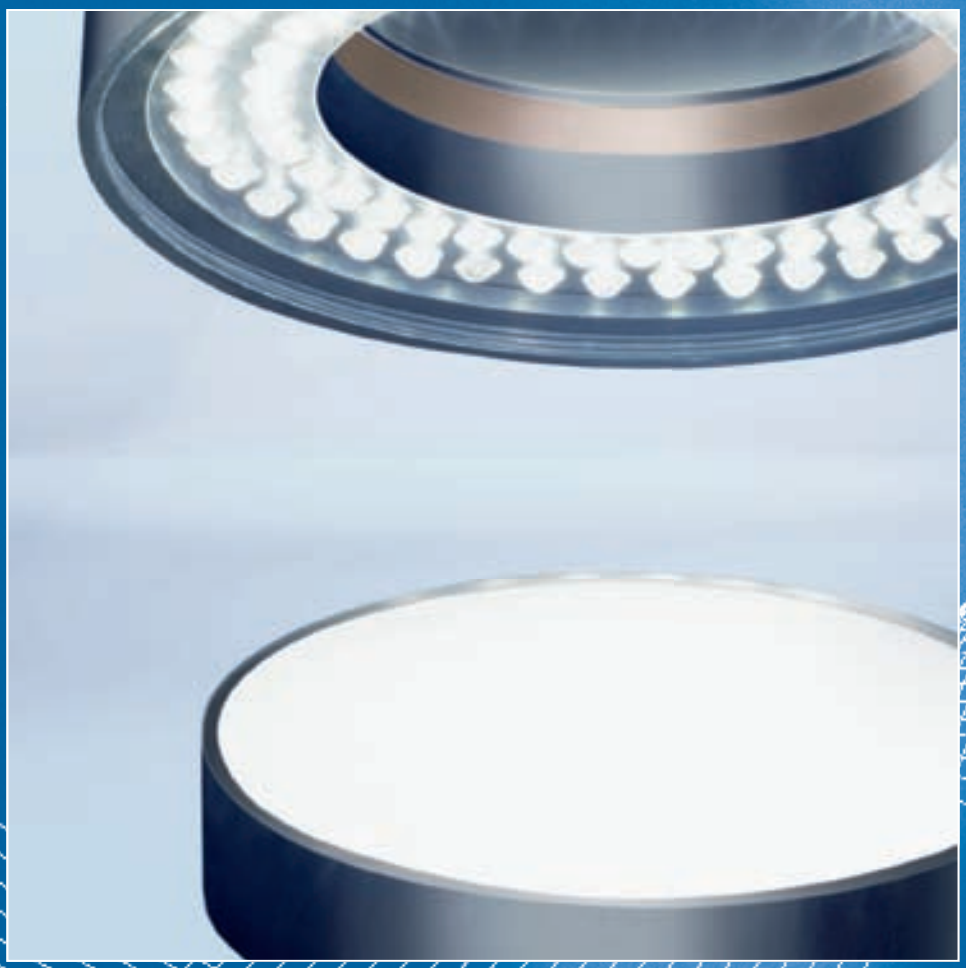
EasyLED and VisiLED Series

LED Illumination for Stereo Microscopy applications



SCHOTT
glass made of ideas

SCHOTT

LED Illumination Systems for Stereo Microscopy

Generations of know-how as clear as glass

SCHOTT is a multinational group present around the world. This allows our customers to talk with a knowledgeable professional, in the comfort of their own culture and language, at their local site.

For more than 40 years, SCHOTT has developed fiber optic products for a diverse range of applications. Furthermore, SCHOTT developed LED solutions for illumination components in an attempt to continuously offer our customers the most up-to-date technologies. SCHOTT fiber optic and LED components reach markets such as automotive, lighting, medical, industrial and defense.

By mastering glass, fibers and processes for the production of fiber optic components and use of LED technology, we develop outstanding, market-oriented products. With our leading technological know-how and innovative ideas we ensure the success of our customers - around the world, around the clock. The **future** of fiber optic and LED solutions starts with SCHOTT **today**.

Benefits of LED illumination systems

- White light (daylight) approx. 5,600K
- Nearly constant color temperature when dimming
- High reliability of LEDs (30,000 operating hours)
- Low power consumption
- Operating completely without noise and vibration (well-suited for clean rooms)
- Robust, black anodized metal housings (well-suited for industrial environments)
- Insensitive to movements and vibrations
- Lightweight devices with thin flexible bundles
- Wide range power supplies: DC output (no flickering)

SCHOTT EasyLED
Ergonomical, stand-alone solution for stereo microscopy and macroscopy

SCHOTT VisiLED
Best contrasting options in stereo microscopy and macroscopy

SCHOTT EasyLED

Ergonomic Illumination for Stereo Microscopy

The EasyLED series is an innovative illumination system specially designed for stereo microscopy.

Employing the newest technologies, SCHOTT has integrated high brightness LEDs and controller electronics into the head of the illuminators.
This saves space on the workbench and allows easy and ergonomic operation, directly on the microscope. There is no need to remove eyes from the eyepieces to find a controller box somewhere on the bench.
Continuous dimming and a separate on/off switch keep the settings unchanged for the next day's session.

EasyLEDs DC-driven light is neutral white (approx. 5,600K) and absolutely flickerfree. It generates images of excellent color fidelity and is well-suited for use with digital cameras.

All illuminators come with wide range power supplies (100 – 240 V) and international clip-in plug adaptors, ready to use all over the world.

Robust, black anodized metal housings and well-designed heat management, afford outstanding brightness and lifetimes of 30,000 hrs.

Due to the fanless design, EasyLEDs are quiet, free of vibration and can be used in cleanrooms as well as rough environments.

Savings on halogen bulbs, clearly reduced energy, service and downtime costs, make EasyLEDs a very attractive choice compared to halogen light sources.

A comprehensive set of accessories such as ring adaptors, gooseneck fixtures, polarizers etc. help to fit EasyLEDs to almost any stereo microscope.

- Robust metal housing
- Integrated controller electronics
- Ergonomic operation
- Flickerfree
- High brightness daylight (5,600K)
- Power LED spot illuminator
- Ready to use worldwide (100-240 V)
- No bulb change, lamp life 30,000 hrs.
- Comprehensive set of accessories
- Fits to almost any microscope
- Outstanding price-performance ratio

Ringlight

- 45 high brightness LEDs
- easy adaption on various microscope objectives (Ø 66 mm / adaptors available)
- integrated controller for continuous dimming (0 – 100%) and separate on/off switch
- wide range of working distances: 55 – 135 mm
- maximum illuminance: 90 klx (at 75 mm free working distance)

Transmitted light stage

- highly uniform backlight illumination
- easy retrofit to incident light bases (Ø 84 mm / adaptors available)
- integrated controller for continuous dimming (0 – 100%) and separate on/off switch
- illuminated area: Ø 50 mm
- maximum luminance up to 12,000 cd/m²

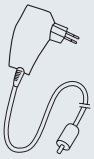
Spot illuminator

- high brightness power LED
- easy adaption at goosenecks and articulating arms
- compact controller for continuous dimming (0 – 100%) and separate on/off switch
- maximum light flux: 40 lm

System diagram for EasyLED

Leg of insect with brightfield illumination

Ringlight



Power Supply 12 V

Ringlight System
P/N 600 200
21.01.01

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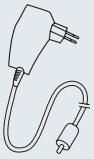
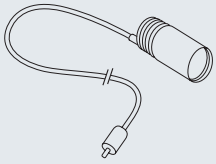
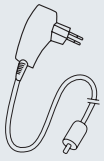


Power Supply 12 V

Transmitted Light Stage System
P/N 600 400
21.01.01



Spot Illuminator



Power Supply 5 V

Controller

Spot Illumination System
P/N 600 100
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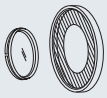
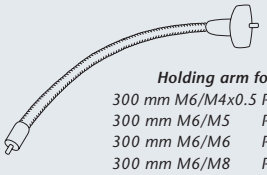


Polarization filter
P/N 400 550
21.02.01

Polarizing filter attachment for TL
P/N 158 500
21.02.01

Analyzer M 49 x 0.75
P/N 158 505
Analyzer M 52 x 1
P/N 158 510
21.02.01

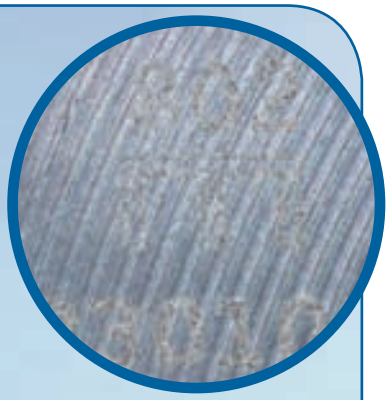


Holding arm for spot
300 mm M6/M4x0.5 P/N 600 520
300 mm M6/M5 P/N 600 522
300 mm M6/M6 P/N 600 524
300 mm M6/M8 P/N 600 526
21.02.01

Base for holding arm
M6 P/N 158 340
21.02.01

Polarization filter for spot
(turnable)
P/N 600 600
21.02.01

Color filter for spot
red P/N 600 650
blue P/N 600 660
green P/N 600 670
yellow P/N 600 680
21.02.01



Piston (ringlight brightfield)

Piston (ringlight with polarizer)

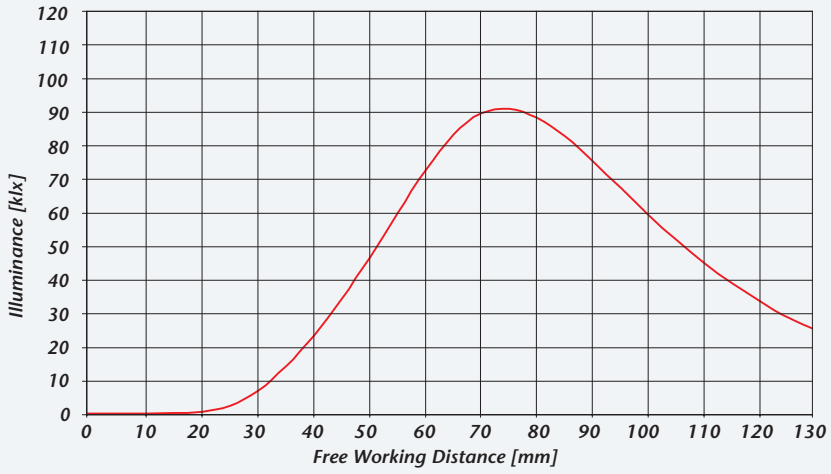
EasyLED

Technical Data

Ringlight system	
Diodes	*45 high brightness LEDs*
Color temperature	*approx. 5,600K*
Working distance	*55 mm ... 135 mm*
Max. illuminance	*90 klx (at 75 mm free working distance)*
Dimensions	*outer Ø: 114 mm / inner Ø: 66 mm / height: 29 mm*
Controller	*integrated, dimmable 0% ... 100%*
Supply voltage	*12 V DC*
Input voltage	*100 - 240 V*
Mains frequency	*50 - 60 Hz*

Transmitted light stage system	
Diodes	*39 SMD LEDs*
Color temperature	*approx. 5,600K*
Illuminated surface	*Ø 50 mm*
Max. luminance	*12,000 cd/m²*
Dimensions	*Ø 84 mm / height: 16 mm*
Controller	*integrated, dimmable 0% ... 100%*
Supply voltage	*12 V DC*
Input voltage	*100 - 240 V*
Mains frequency	*50 - 60 Hz*

Spot illumination system	
Diode	*1 high brightness Power LED*
Color temperature	*approx. 5,600K*
Max. light flux	*40 lm*
Fitting	*M6 thread*
Spot dimensions	*Ø 24 mm / height: 50 mm*
Controller	*separate, dimmable 0% ... 100%*
Controller dimensions	*54 x 35 x 30 mm*
Supply voltage	*5 V DC*
Input voltage	*100 - 240 V*
Mains frequency	*50 - 60 Hz*



Illuminance of EasyLED ringlight dependent on the free working distance

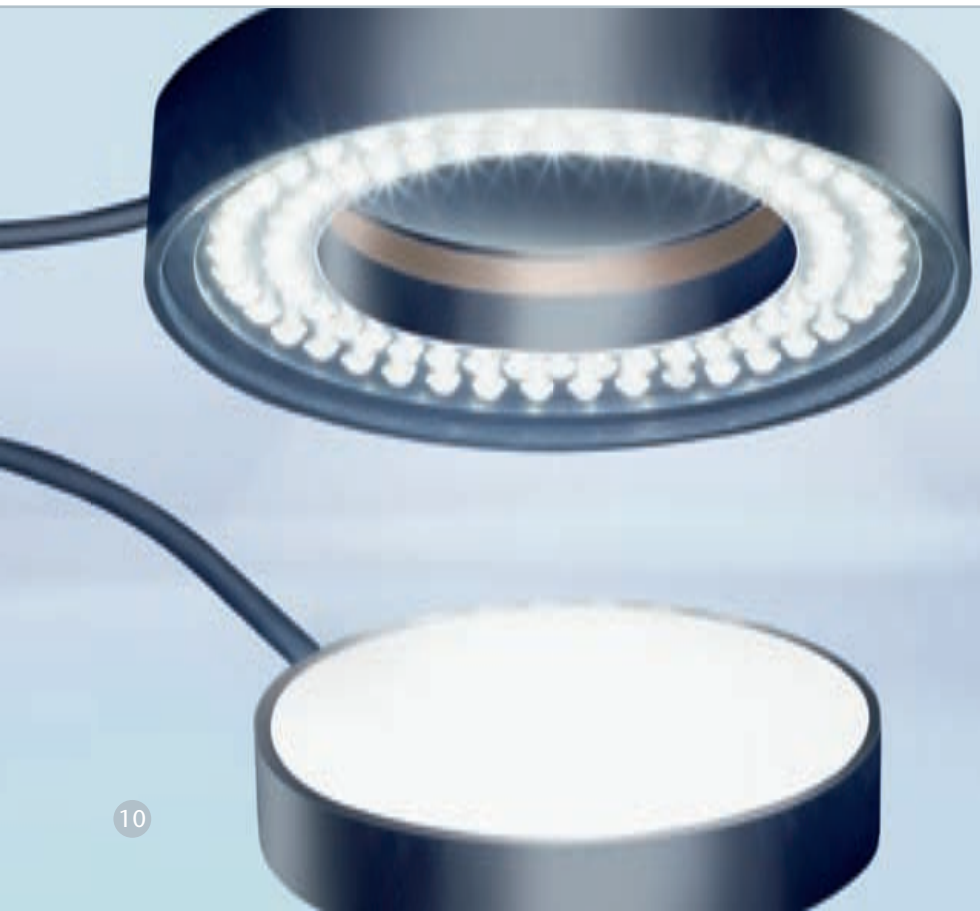
SCHOTT VisiLED

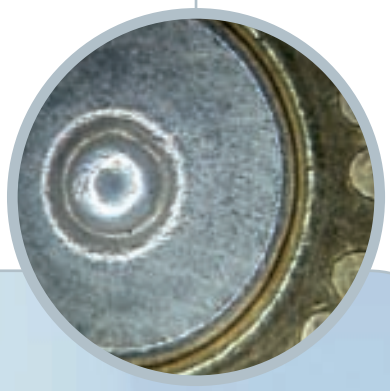
Enhanced Contrast for Stereo Microscopy

The VisiLED product line is an innovative illumination system specially developed for stereo microscopy and macroscopy. Utilizing the benefits of white LEDs, this system opens up completely new possibilities for putting microscope specimens in the right light.

The VisiLED system features the following SCHOTT exclusives:

- Lightheads are controllable in segments, which enables new contrasting methods.
- Easy combination of brightfield with darkfield illumination or of incident light with transmitted light allows targeted mixing of light for demanding work in research, development and routine procedures.
- Illumination parameters can be stored in memory positions, leading to reproducible mixed light conditions. Quick and easy changeovers between stored light settings.





Breech Face Marking, Brightfield Ringlight, full circle

Breech Face Marking, Brightfield Ringlight, 1/4 circle from north west

Contrast Your Application

The excellent controllability of the LEDs affords the VisiLED contrasting methods, which go far beyond the possibilities provided by conventional microscope illuminations.

The MC1500 controller contains five preset VisiLED segment illumination modes.

This enables quick changeovers between shadow-free full-circle illumination to soft-shadow half circle or 4-point illuminations as well as to strongly directional illuminations. Rotating these directed illuminations around an object intensifies surface structures and optimizes contrast.

Additional contrasting options are achieved by combining of two VisiLED illuminations.

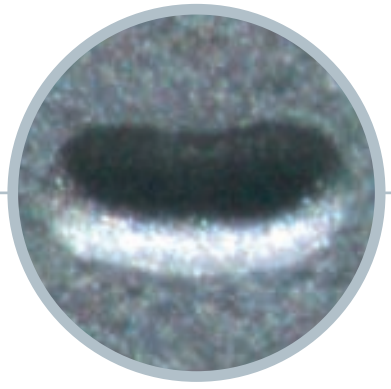
For example:

- The incident darkfield ringlight enhances structures on flat surfaces but also creates black shadows in recessed openings. Adding a small amount of brightfield illumination softens these shadows and makes inspection of the recessed openings possible.
- Certain translucent objects are normally inspected with incident light, e.g. crystals in geology. Adding transmitted light and optimizing the illumination direction helps considerably to intensify contrasts considerably.

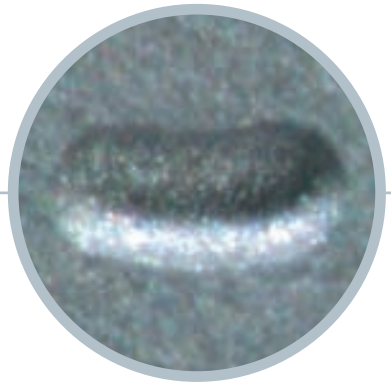
Continuous rotation of a directional illumination increases the impression of three-dimensionality with structured specimens, especially when viewed on a monitor.

In flash mode the defined mixed light can be momentarily enhanced by an intensive single pulse: exposure times of connected photo equipment can be reduced – the mixed light "flashes". This is important when documenting weakly reflective specimen.

The possibility of storing, archiving and easily reproducing the high contrasting light conditions together with the option of controlling the VisiLEDs from PCs makes the system the ultimate choice for investigations in the field of forensics.



Notch in a Wafer, Incident Darkfield, 1/4 circle from north



Notch in a Wafer, Incident Darkfield & Brightfield, 1/4 circle from north

VisiLED
Lightheads

All VisiLED illuminations are optimized for microscopy use. Strongly focused illumination areas as well as the working distances and adaptation diameters match with common stereo microscope objectives.

Highly intensive cold light is brought precisely to the specimen – heat-free and with the best quality white of approx. 5,600K CCT.

The product line comprises:

Brightfield ringlights for high intensity incident light illumination with 80 or 40 white LEDs

- Ringlights S80-55 and S40-55 with minimum working distance of 55 mm for objectives up to magnification 1
- Ringlight S80-25 with working distances of 25 - 50 mm for higher magnifying objectives

Darkfield ringlight S40-10D for an intensive illumination in the incident darkfield, enhancing contrasts of flat structured surfaces. It can be mounted on 58/66/70 mm objectives via an adapter ring or easily be combined with all brightfield ringlights using the brightfield-darkfield adapter kit.

Transmitted light bases for excellent contrasting of transparent objects

- The compact VisiLED transmitted light stages TLS-BF for brightfield and TLS-DF for darkfield fit in all common stereo microscope stands.
- The VisiLED ACT base (Advanced Contrast Transmitted) sets new standards for examing the structures of low-contrast, uncolored specimens. It combines transmitted light brightfield and darkfield illuminations, all settable as shadowfree or as oblique light illuminations. Additionally, two mechanical diaphragms enable a high end relief contrast for low-structured transparent samples and phase specimen that are scarcely recognizable in the direct brightfield.

Controllers

Controllers have been specifically developed for the VisiLED Series microscopy illumination system.

MC1500 – the intelligent multifunction center

The MC1500 is the core of the VisiLED system. It controls up to two illuminations simultaneously and thus offers easy combination of any two VisiLED lightheads. The MC1500 allows the setting various illumination parameters including light intensity, different segment modes and change of illumination direction. Additionally, the controller offers rotating, strobing, external triggering or flashing of the LED light, ensuring constant mixed light characteristics through its synchronized control of the connected VisiLED illuminations.

Different mixed light settings can be permanently stored in the memory section of the MC1500, quickly reproducible using the controller keys or a foot switch. The MC1500 can be completely controlled by PC or laptop via RS232 interface or USB. It allows exact parameter settings and expanded segment control. A windows demo software and a DLL to integrate in customer software are included.

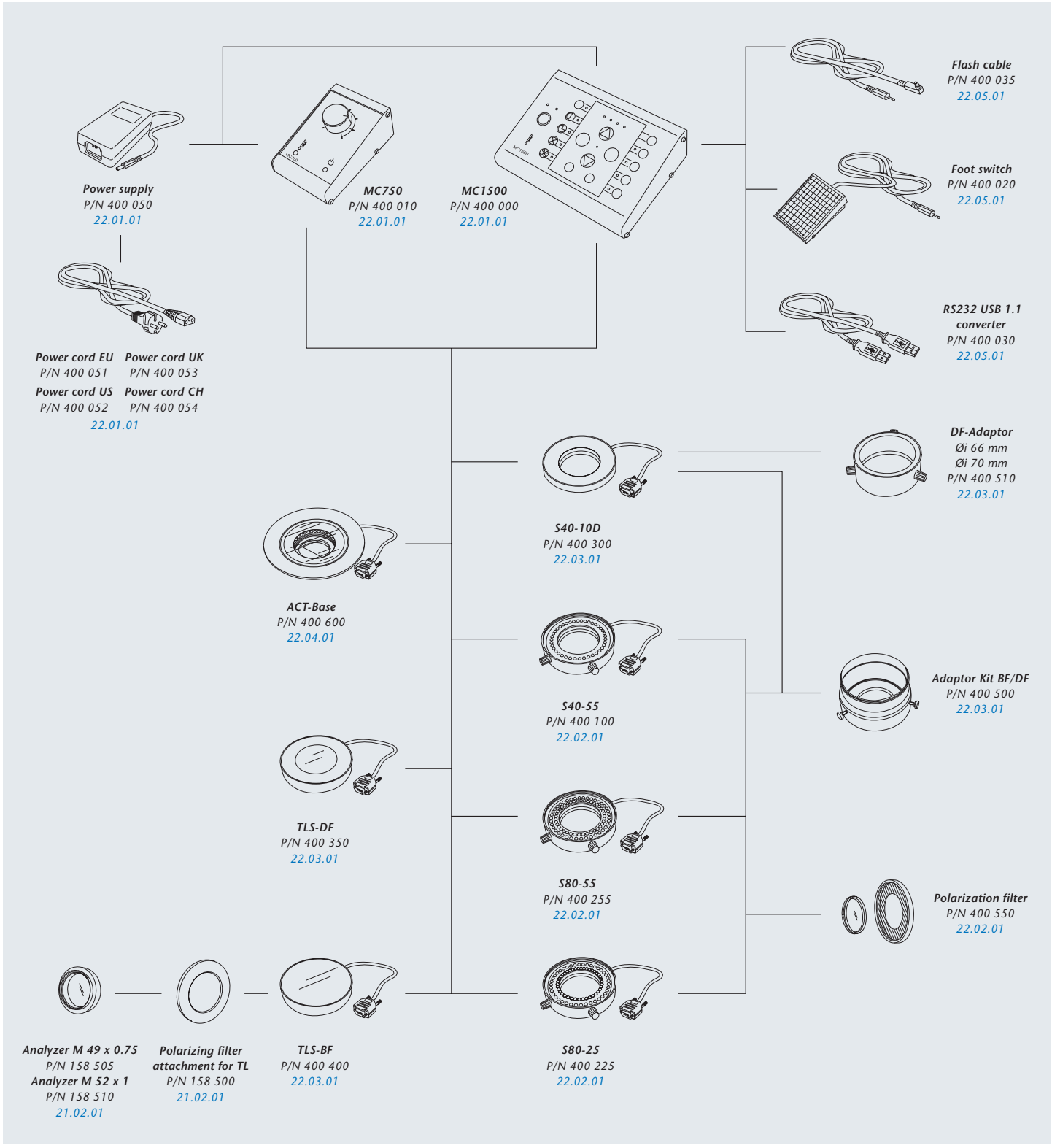
The LED temperatures in each VisiLED illumination are continuously monitored by the MC1500. This thermo guard ensures a long lifetime of the white LEDs – even when set at the maximum brightness level.

Additional accessories: a flash cable, a foot switch and a RS232-to-USB1.1 converter

MC750

A controller for lower contrasting requirements. The MC750 has continuous dimming via potentiometer and over temperature protection of the LED lighthead.

System diagram for VisiLED



VisiLED

Technical Data

Ringlight S80-55	
Diodes	*80 high brightness LEDs*
Color temperature	*ca. 5,600K*
Working distance	*55 mm … 135 mm*
Max. illuminance	*130 klx (at 75 mm free working distance)*
Dimensions	*outer Ø: 114 mm / innerØ: 66 mm / height: 24 mm*

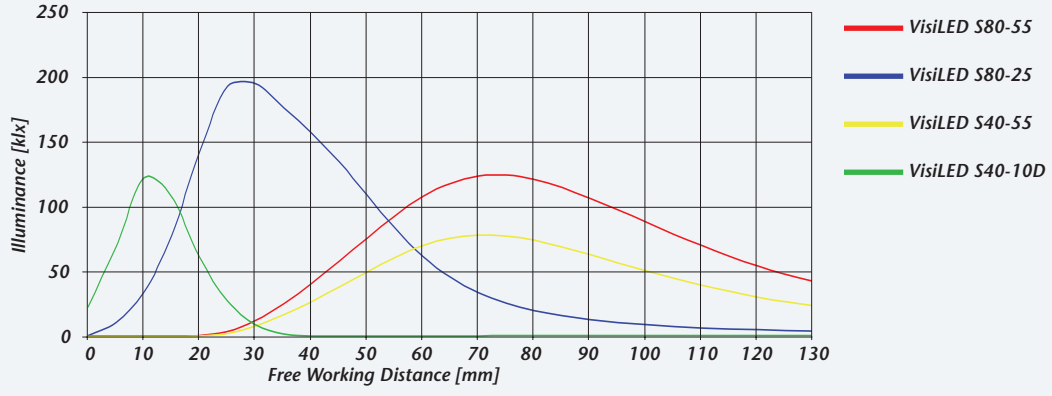
Ringlight S80-25	
Diodes	*80 high brightness LEDs*
Color temperature	*ca. 5,600K*
Working distance	*25 mm … 50 mm*
Max. illuminance	*200 klx (at 30 mm free working distance)*
Dimensions	*outerØ: 114 mm / innerØ: 66 mm / height: 24 mm*

Ringlight S40-55	
Diodes	*40 high brightness LEDs*
Color temperature	*ca. 5,600K*
Working distance	*55 mm … 110 mm*
Max. illuminance	*80 klx (at 70 mm free working distance)*
Dimensions	*outerØ: 114 mm / innerØ: 66 mm / height: 24 mm*

Ringlight S40-10D	
Diodes	*40 high brightness LEDs*
Color temperature	*ca. 5,600K*
Working distance	*5 mm … 15 mm*
Max. illuminance	*130 klx (at 10 mm free working distance)*
Dimensions	*outerØ: 118 mm / innerØ: M76x1 / height: 14 mm*

Transmitted light stage brightfield	
Diodes	*80 SMD LEDs*
Color temperature	*ca. 5,600K*
Illuminated surface	*50 mm*
Max. luminance	*8,000 cd/m²*
Dimensions	*Ø: 84 mm / height: 15 mm*

Controller MC 750 / MC 1500	
Dimensions	*73.5/153 x 110 x 40 mm*
Light setting	*dimmable 0% … 100%*
Supply voltage	*24 V DC*
Input voltage	*85 – 264 V*
Mains frequency	*50 – 60 Hz*



Illuminance of VisiLED ringlights dependent on the free working distance