

EasyLED and VisiLED Series

LED Illumination for Stereo Microscopy applications



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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.

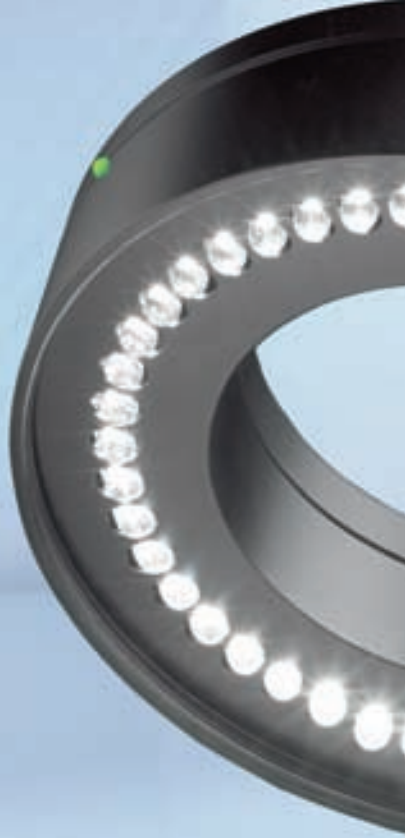
Due to the fanless design, EasyLEDs are quiet, free of vibration and can be used in cleanrooms as well as rough environments.

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

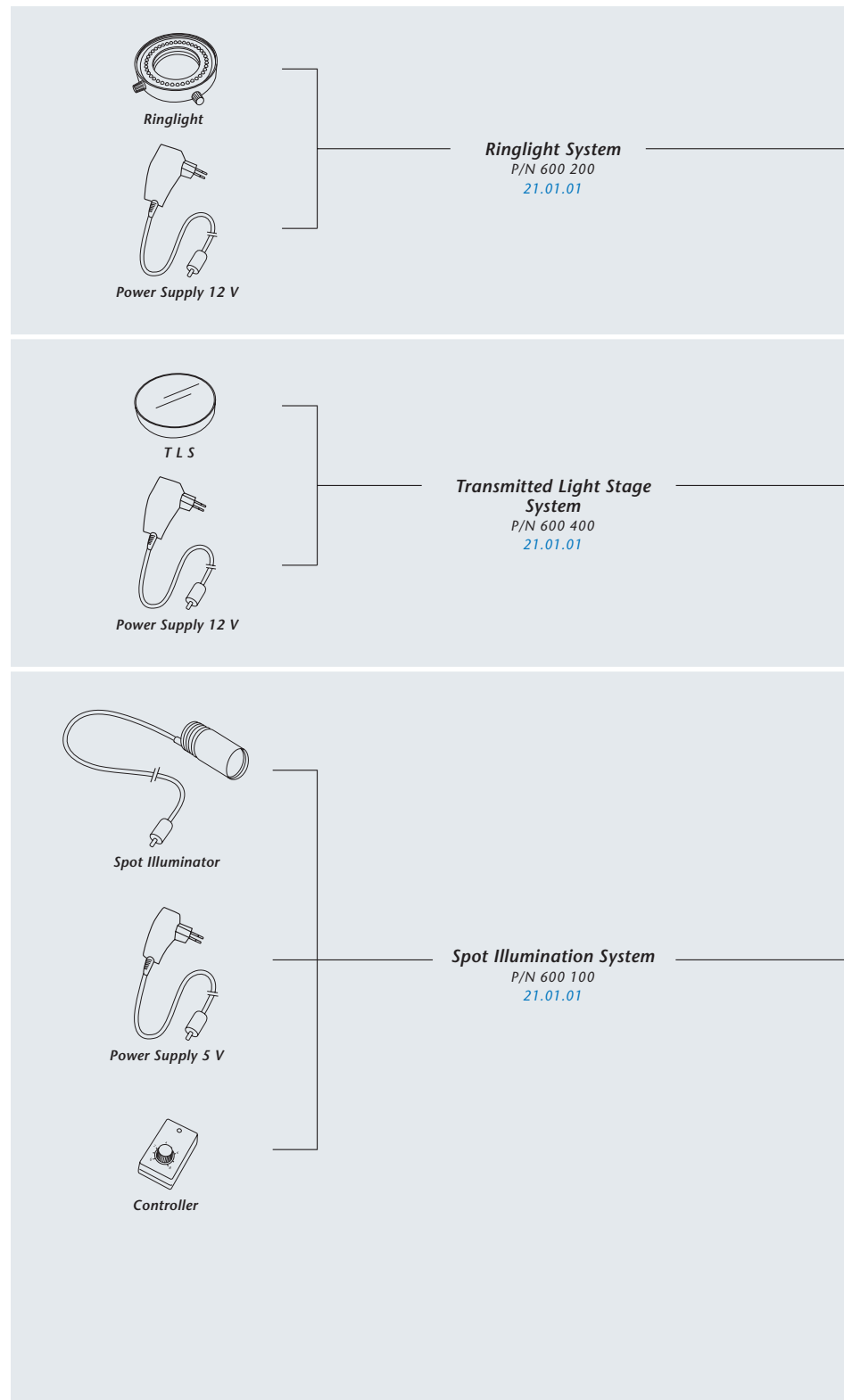
Spot illuminator

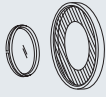
- high brightness power LED
- easy adaption at goosenecks and articulating arms
- compact controller for continuous dimming (0 – 100%) and separate on/off switch
- maximum light flux: 40 lm

System diagram for EasyLED



Leg of insect with brightfield illumination





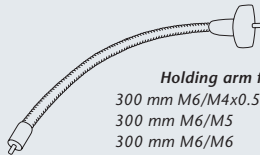
Polarization filter
P/N 400 550
21.02.01



**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

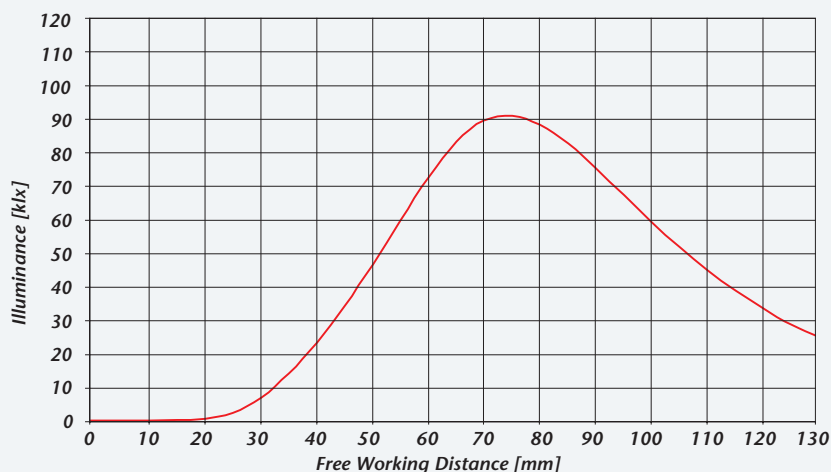
Diodes	45 high brightness LEDs
Color temperature	approx. 5,600K
Working distance	55 mm ... 135 mm
Max. illuminance	90 klx (at 75 mm free working distance)
Dimensions	outer Ø: 114 mm / inner Ø: 66 mm / height: 29 mm
Controller	integrated, dimmable 0% ... 100%
Supply voltage	12 V DC
Input voltage	100 - 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/m ²
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

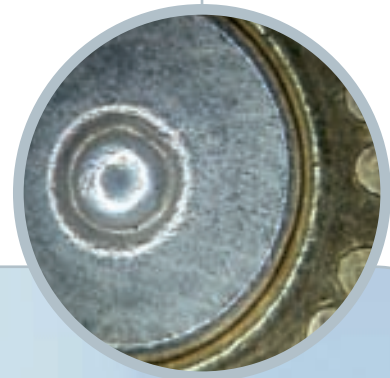
SCHOTT VisiLED

Enhanced Contrast for Stereo Microscopy

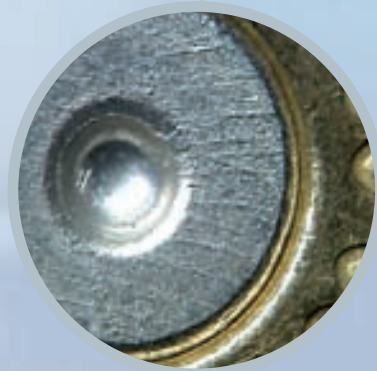
The VisiLED product line is an innovative illumination system specially developed for stereo microscopy and macroscopy. Utilizing the benefits of white LEDs, this system opens up completely new possibilities for putting microscope specimens in the right light.

The VisiLED system features the following SCHOTT exclusives:

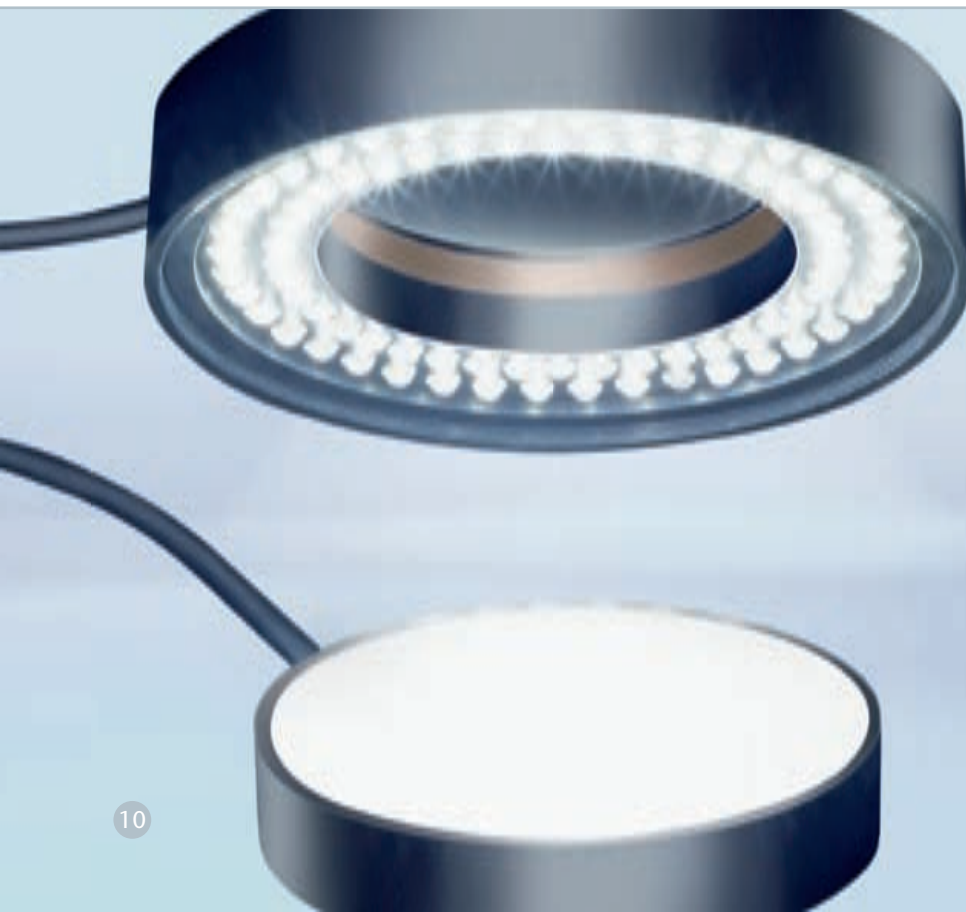
- Lightheads are controllable in segments, which enables new contrasting methods.
- Easy combination of brightfield with darkfield illumination or of incident light with transmitted light allows targeted mixing of light for demanding work in research, development and routine procedures.
- Illumination 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.

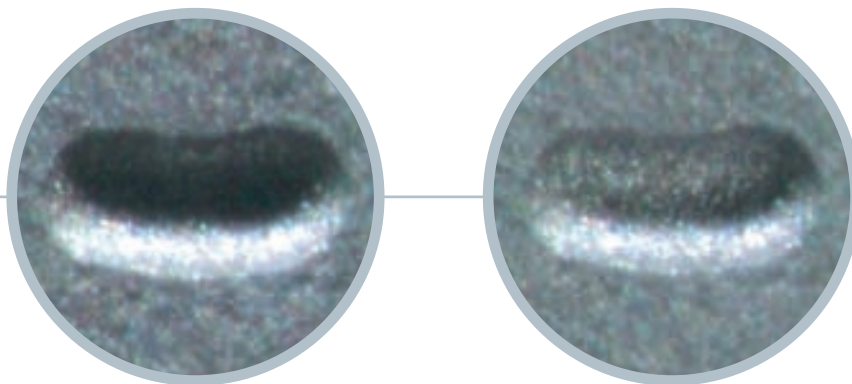
For example:

- 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 examining 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 specimens 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.

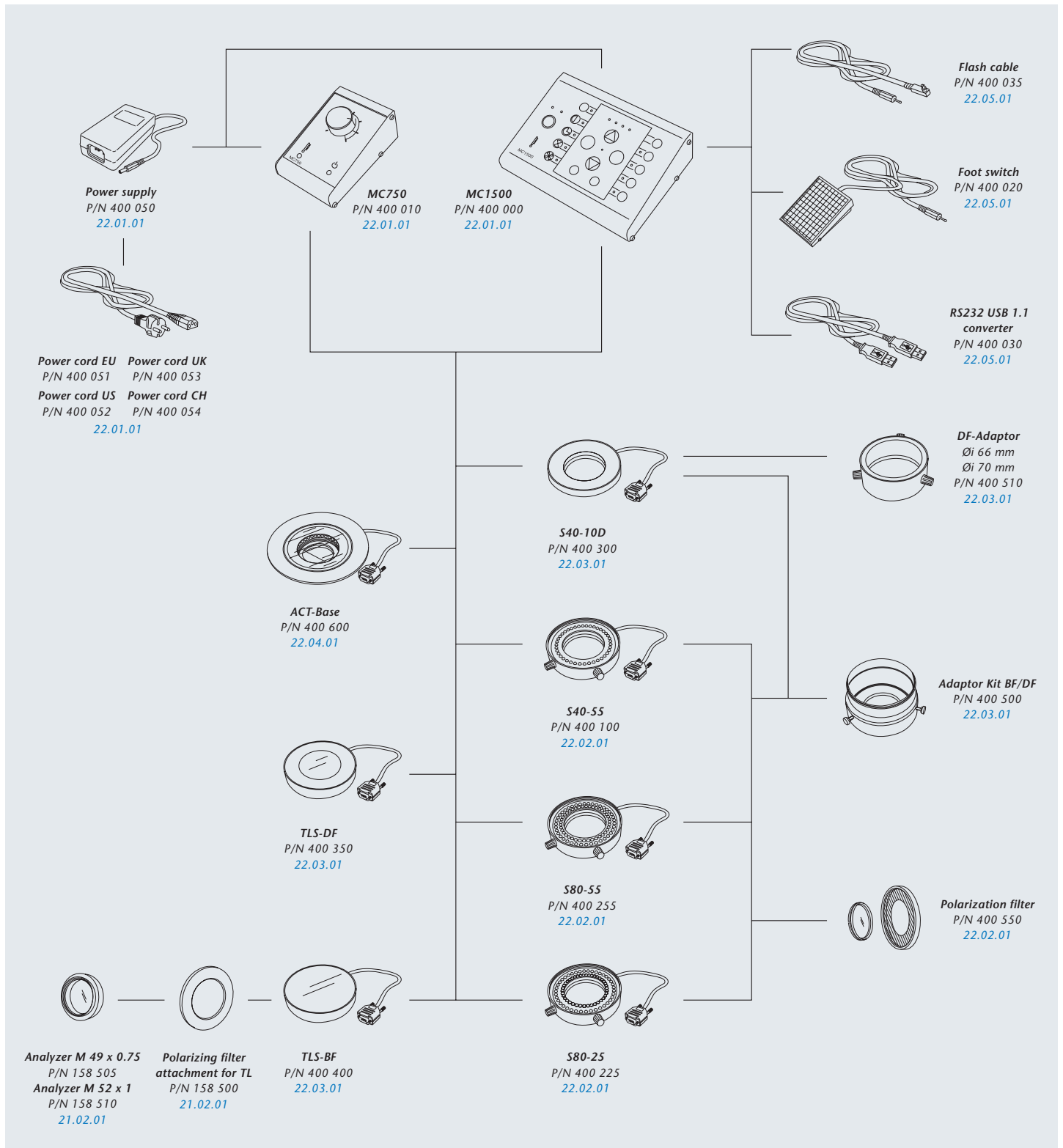
The LED temperatures in each VisiLED illumination are continuously monitored by the MC1500. This thermo guard ensures a long lifetime of the white LEDs – even when set at the maximum brightness level.

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



Technical Data

Ringlight S80-S5

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-S5

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

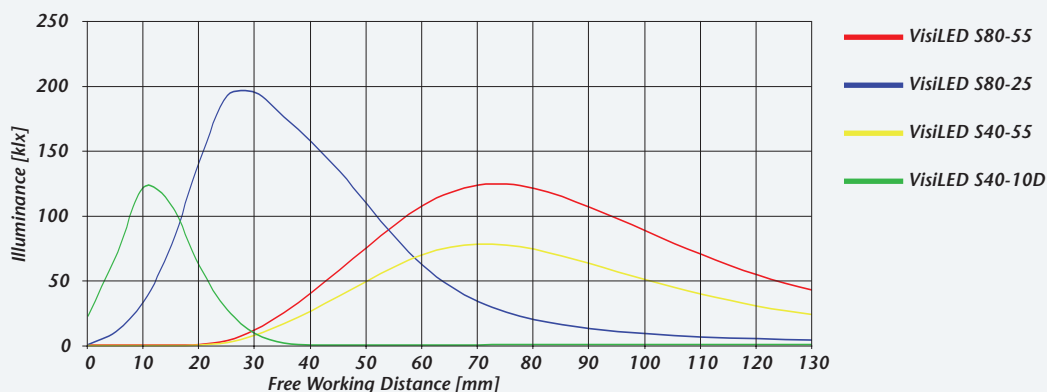
Diodes	40 high brightness LEDs
Color temperature	ca. 5,600K
Working distance	5 mm ... 15 mm
Max. illuminance	130 klx (at 10 mm free working distance)
Dimensions	outerØ: 118 mm / innerØ: M76x1 / height: 14 mm

Transmitted light stage brightfield

Diodes	80 SMD LEDs
Color temperature	ca. 5,600K
Illuminated surface	50 mm
Max. luminance	8,000 cd/m ²
Dimensions	Ø: 84 mm / height: 15 mm

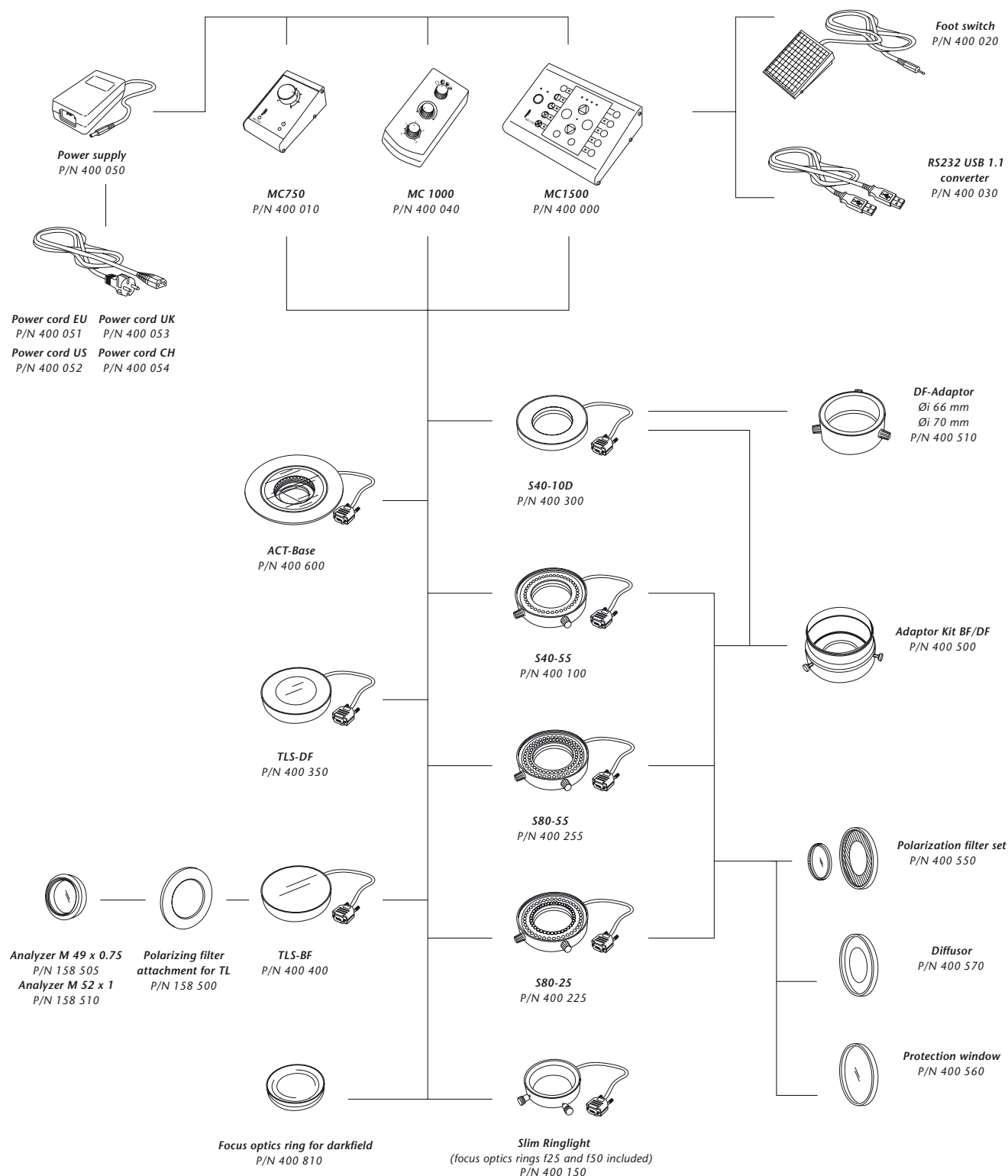
Controller MC 750 / MC 1500

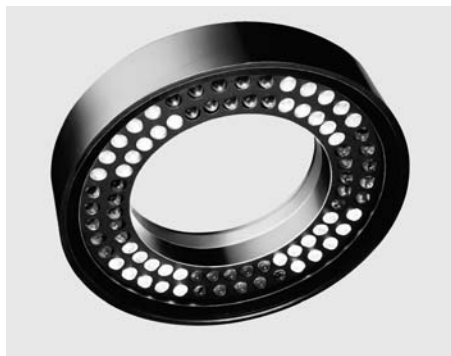
Dimensions	73.5/153 x 110 x 40 mm
Light setting	dimmmable 0% ... 100%
Supply voltage	24 V DC
Input voltage	85 – 264 V
Mains frequency	50 – 60 Hz



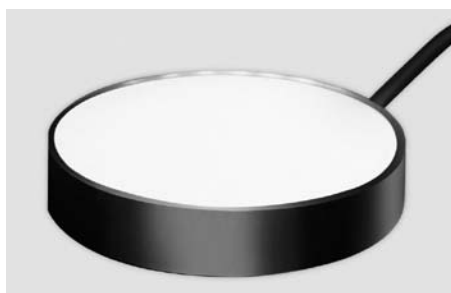
Illuminance of VisiLED ringlights dependent on the free working distance

System diagram for VisiLED





Brightfield ringlight, S80-55



Transmitted Light Stage

VisiLED Brightfield Lightheads

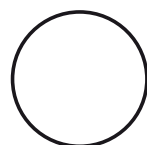
Illumination system specially developed for stereo microscopy and macroscopy applications.

4 Lightheads for brightfield illumination techniques

- 3 Brightfield ringlights for high and low brightness requirements.
- 1 Transmitted light stage for brightfield applications.

Features

- Easily adaptable to microscope objectives by means of thumb screw and clamp ring.
- Homogenous illumination.
- Best white quality: typically 5,600 K.
- Long operating life: typically 50,000 h by actively controlling the LED's temperature.
- Segments controllable in different preset modes for optimum contrasting:



full



half



quarter



dual



4 point

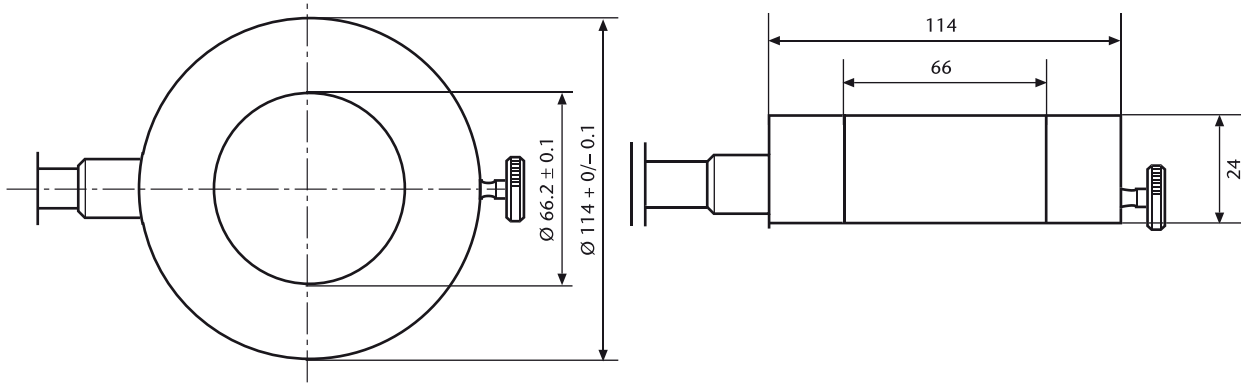
- Manufactured in the EU.

Lightheads					
Description	Part. No.	Working Distance (WD)	Max. Illuminance	Inner Ø	Outer Ø
LED Brightfield ringlight "S40-55"	400 100	55-110 mm (2.17"-4.33")	80 klx (75 mm) (2.95")	66 mm (2.60")	114 mm (4.49")
LED Brightfield ringlight "S80-25"	400 225	25-50 mm (0.98"-1.97")	320 klx (30 mm) (1.18")	66 mm (2.60")	114 mm (4.49")
LED Brightfield ringlight "S80-55"	400 255	50-135 mm (2.17"-5.32")	200 klx (75 mm) (2.95")	66 mm (2.60")	114 mm (4.49")
Transmitted light stage "TLS-BF"	400 400		20,000 cd/m ² (luminance in center)	active 50 mm (1.97")	84 mm (3.31")

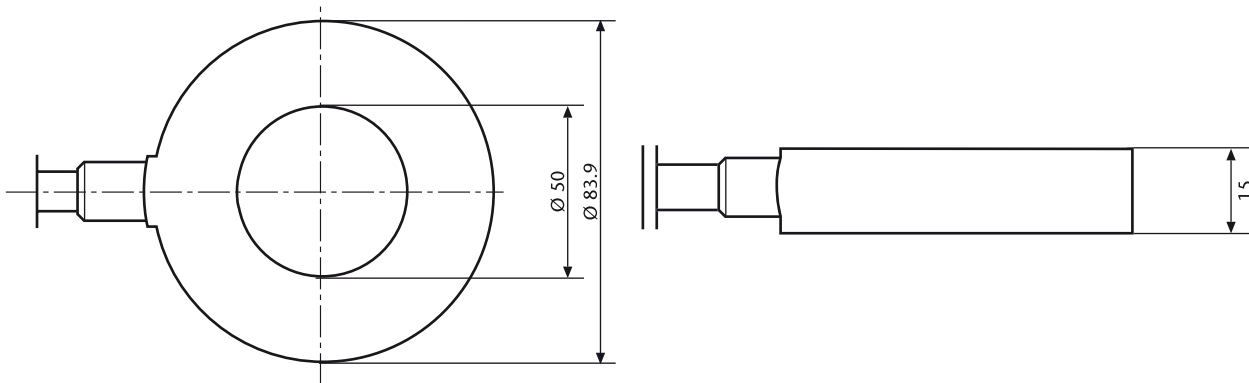
Accessories	
Description	Part. No.
Combi-kit to combine one brightfield and the darkfield for mixed illumination.	400 500
Polarization Filter System for brightfield ringlights	400 550
Polarization filter attachment for transmitted light stage	158 500
Protection window for brightfield ringlights	400 560
Diffusor for brightfield ringlights	400 570

Objective Adaptors for Ringlights	
Ø 58 mm to Ø 66 mm	157 450
Ø 60 mm to Ø 66 mm	157 452
M48x0.75 to Ø 66 mm	157 454
M55x0.75 to Ø 66 mm	157 456

VisiLED Brightfield Lightheads



Brightfield ringlight



Transmitted light stage

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VisiLED

Slim Ringlight



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SCHOTT VisiLED

Slim LED Ringlight

The Slim Ringlight is a further innovative LED ringlight system, specifically developed for stereo microscopy to illuminate all types of objects in industrial and life science applications.

Due to its slim housing, it is optimal for unconfined object preparation and provides ample space for the usage with objective revolvers.

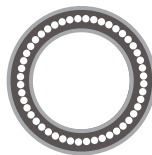
By simply exchanging screwable focus optics rings, three variable working distance ranges are possible for brightfield and darkfield illumination.

Advantages:

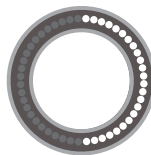
- Easily adaptable to microscope objectives by means of thumb screws
- Homogeneous incident or oblique illumination
- Variable working distance ranges possible by exchange of focus optics rings
- Implementation of brightfield and darkfield applications
- Segments controllable in different preset modes



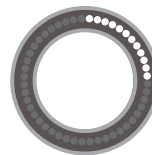
Focus optics rings for various working distance ranges



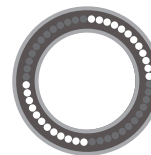
full



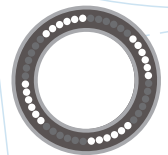
half



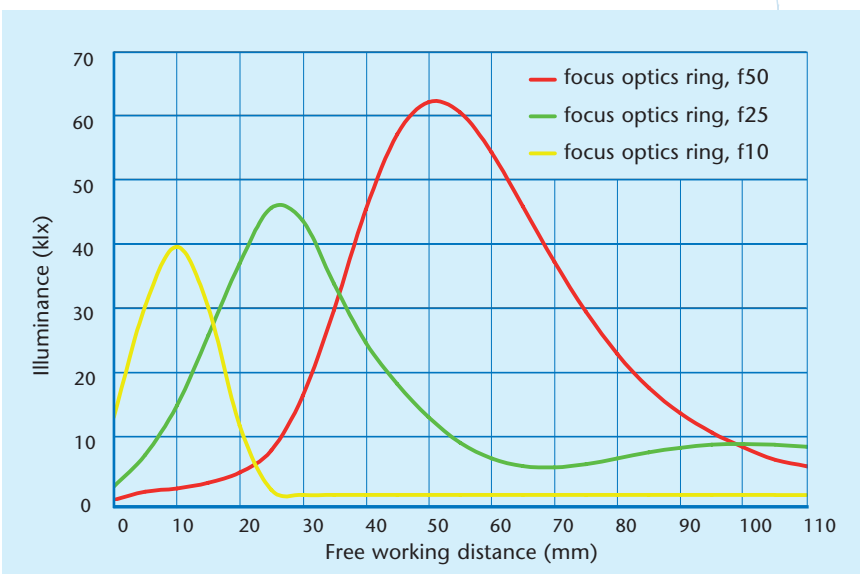
quarter



dual



4 point



Illuminance at free working distance



Benefits:

- Slim and space saving LED ringlight
- Optimal for unconfined object preparation or usage with objective revolvers

VisiLED Slim Ringlight

Description	Part.No.	Free working distance range brightfield*	Max. Illuminance	Adaption Ø	Outer Ø	Height
Slim Ringlight	400 150	40 – 90 mm	65 klx (at 50 mm FWD)	66 mm	82 mm	35.5 mm
		20 – 40 mm	45 klx (at 25 mm FWD)			37.5 mm

**Focus optics rings for both working distance ranges are included*

Accessories for darkfield application

Description	Free working distance range		Part. No.
Focus optics ring for darkfield	5 - 20 mm		400 810
Extension adapters	Length		Part. No.
For objective working distance 30-50 mm	30 mm		157 569
For objective working distance 50-80 mm	50 mm		157 567
For objective working distance 80-110 mm	75 mm		157 562

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Slim Ringlight



Focus optics rings for various working distance ranges



Extension adapters for darkfield application

VisiLED Slim Ringlight

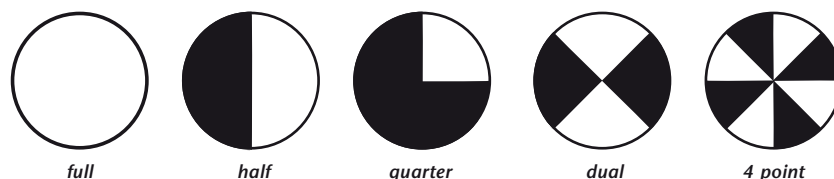
Innovative Illumination system specially developed for stereo microscopy and macroscopy applications

Benefits

- Slim and space saving LED ringlight
- Optimal for unconfined object preparation or usage with objective revolvers

Features

- Easily adaptable to microscope objectives by means thumb screw
- Homogeneous incident or oblique illumination
- Controllable with all VisiLED controllers (MC750, MC1000, MC1500)
- Variable working distance ranges possible by exchange of focus optics rings
- Implementation of brightfield and darkfield applications
- Segments controllable in different preset modes:



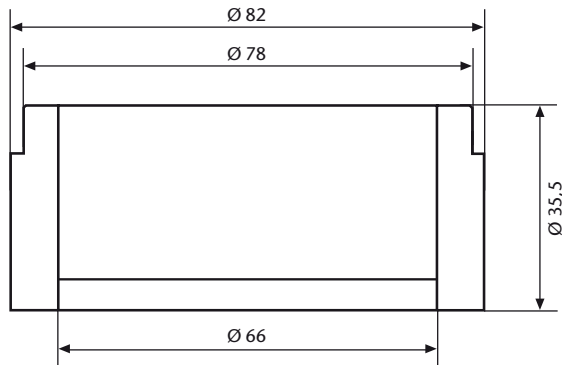
- Manufactured in Japan

Light Head						
Description	Part.No.	Free working distance (FWD) brightfield*	Max. illuminance	Adaption Ø	Outer Ø	Height
Slim Ringlight	400 150	40 – 90 mm (1.57" – 3.54")	65 klx (at 50 mm FWD)	66 mm (2.60")	82 mm (3.23")	35.5 mm (1.40")
		20 – 40 mm (0.79" – 1.57")	45 klx (at 25 mm FWD)			37.5 mm (1.48")

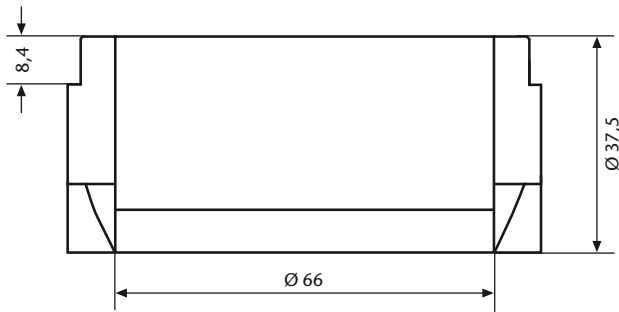
* Focus optics rings for both working distance ranges are included

Accessories for darkfield application				
Description		Free working distance (FWD)		Part.No.
Focus optics ring for darkfield		5 - 20 mm (0.20" - 0.79")		400 810
Extension adapters			Length	Part.No.
For objective working distance 30 – 50 mm (1.18" – 1.97")			30 mm (1.18")	157 569
For objective working distance 50 – 80 mm (1.97" – 3.15")			50 mm (1.97")	157 567
For objective working distance 80 – 110 mm (3.15" – 4.33")			75 mm (2.95")	157 562

VisiLED Slim Ringlight



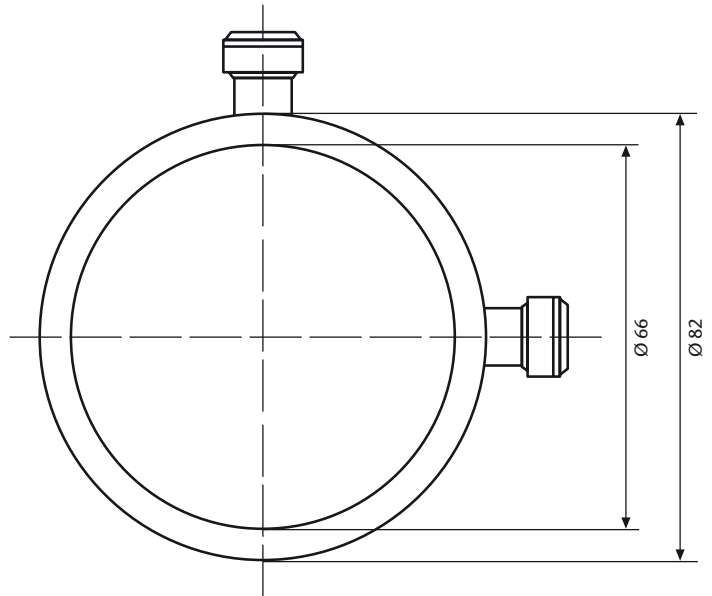
with focus optics ring f50



with focus optics ring f25



with focus optics ring f10



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