



**SCHOTT**  
glass made of ideas

## EasyLED

### User Manual

Distribution in the UK & Ireland



**Lambda Photometrics Limited**  
Lambda House Batford Mill  
Harpenden Herts AL5 5BZ  
United Kingdom  
E: [info@lambdaphoto.co.uk](mailto:info@lambdaphoto.co.uk)  
W: [www.lambdaphoto.co.uk](http://www.lambdaphoto.co.uk)  
T: +44 (0)1582 764334  
F: +44 (0)1582 712084

# Operating instructions

EasyLED Series



Status: March 2016

# Contents

1.	System description .....	3
2.	System overview .....	4
3.	Important information .....	5
4.	Start-up procedure and operation .....	7
5.	Maintenance .....	13
6.	Technical data .....	13
7.	Spare parts and accessories .....	15

# 1. System description

The EasyLED Series is an illumination system using white LEDs, specially developed for the field of stereomicroscopy, in industrial and laboratory applications.

The series comprises:

- Ringlight / Ringlight Plus (A)
- Transmitted Light Stage (B)
- Spot Illumination / Double Spot Illumination (C)

### **Notice:**

The systems Ringlight / Ringlight Plus, Transmitted Light Stage and Spot Illumination / Double Spot Illumination are available separately and can be operated separately as well. Instructions on how to control these systems are provided in the corresponding section of these operating instructions (Ringlight / Ringlight Plus, Transmitted Light Stage) and in a separate document (Spot Illumination Plus), respectively.

State-of-the-art technology has been applied to integrate high brightness LEDs with control electronics in the head of the Ringlight and Transmitted Light Stage illumination units and in the Spot Illumination / Double Spot Illumination.

The product line is distinguished by its particularly easy and ergonomic operation.

Running on direct current, the EasyLED system is ideally suited for use with digital cameras. It supports continuous dimming and comes with a separate power switch, which means that brightness settings can be stored. As the LEDs emit a neutral white light (approx. 5,600 K), it is possible to capture images with exceptional colour fidelity.

One power supply unit with wide range input (F), which can be used in the 100-240 V voltage range, powers Ringlight, Ringlight Plus and Transmitted Light Stage, respectively, and is supplied with clip-in connectors, making operation worldwide possible.

A black anodised metal housing and effectively designed heat sinks keep the LEDs cool and provide for a lifetime of over 50,000 hours.

Suitable adapters allow for using the EasyLED Ringlights / Transmitted Light Stage in combination with stereo microscopes made by all major manufacturers.

In addition, suitable polarising filters and colour filters as well as protection glasses and diffusers are available for relevant applications (see point 7 of these operating instructions).

The SCHOTT EasyLED Series combines supreme quality with extraordinary design.

## 2. System overview



**A**

**B**

**C**




**F**

- A Transmitted Light Stage
- B Ringlight / Ringlight Plus
- C Spot Illumination
- F 12 V DC power supply unit for Ringlight and Transmitted Light Stage

### 3. Important information

#### Symbols used:

Symbol	Meaning
	Warning of danger (caution, obey documentation)

#### Intended use:

The EasyLED lighting system is intended for industrial and laboratory applications. It has been engineered for the areas of stereomicroscopy and macroscopy.

According to standard EN 62471:2008 the LED lights included in the EasyLED Series are products grouped in risk class 0 (Transmitted Light Stage (B)) / risk class 1 – low risk (Ringlight / Ringlight Plus (A)).

The EasyLED lighting system is in compliance with the following directives of the European Community:

2014/35/EC (Low Voltage Directive)

2014/30/EC (EMC Directive)

2011/65/EC (RoHS)

The observance of the basic requirements set forth in the directives mentioned above is verified by the technical documentation and by full compliance with the standards listed below:

EN 61326-1:2013

EN 61010-1:2010

EN 50581:2012

LEDs are characterised by an exceptionally high luminance level. As a consequence, never look directly into the LEDs (also with optical instruments) when the illumination is switched on (danger of ophthalmic injury)!

To avoid unnecessary strain on the object by illuminating with visible light, reduce the brightness and duration of illumination to the absolute minimum level required!



#### **Safety information:**

**Please read and observe these instructions carefully. The instrument's safety cannot be guaranteed unless you observe the operating instructions!**

LEDs are characterised by an exceptionally high luminance level. As a consequence, never look directly into the LEDs (also with optical instruments) when the illumination is switched on (danger of ophthalmic injury)!

## **EasyLED - Operating Instructions**

To avoid unnecessary strain on the object by illuminating with visible light, reduce the brightness and duration of illumination to the absolute minimum level required!

The instruments may be operated only with the power supply unit specified by SCHOTT and only within the designated mains voltage range. Otherwise, trouble-free operation and conformity with applicable standards cannot be guaranteed!

The illumination units have been designed for operation in dry and dust-free interior rooms only!

The system must not be used in explosive areas!

Safe disconnection from the power supply is only guaranteed by pulling out the mains plug!

When setting up, dismantling and converting the system, always switch off the instruments and pull the power plug!

Never open or dismantle power supply units or illumination units. Refrain from performing any technical modifications. Repairs may only be carried out by the manufacturer or by its authorised customer service agencies.

Please ensure that every user of the system has quick access to these operating instructions!

The manufacturer is not liable for damage caused by failure to obey these instructions.

### **Notes on operating the Transmitted Light Stage:**

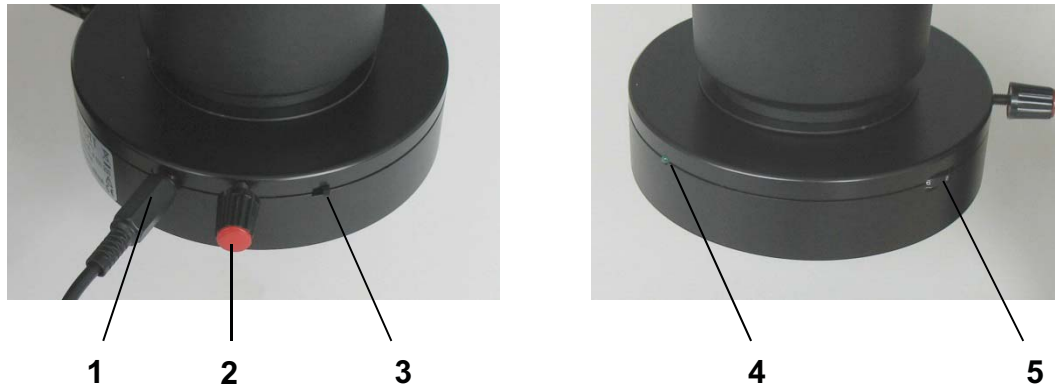
The transmitted light stage has been developed for operation in a microscope stand or in another metallic heat sink.

If the transmitted light stage is operated without the heat sink, the metal housing can heat up to approx. 50°C. However, the diffuser disc and the specimen field do not heat up to the same level.

While causing an unpleasant sensation, the housing temperature mentioned above does not impair technical safety. The operation of the illumination is not affected in any way.

## 4. Start-up procedure and operation

### Ringlight



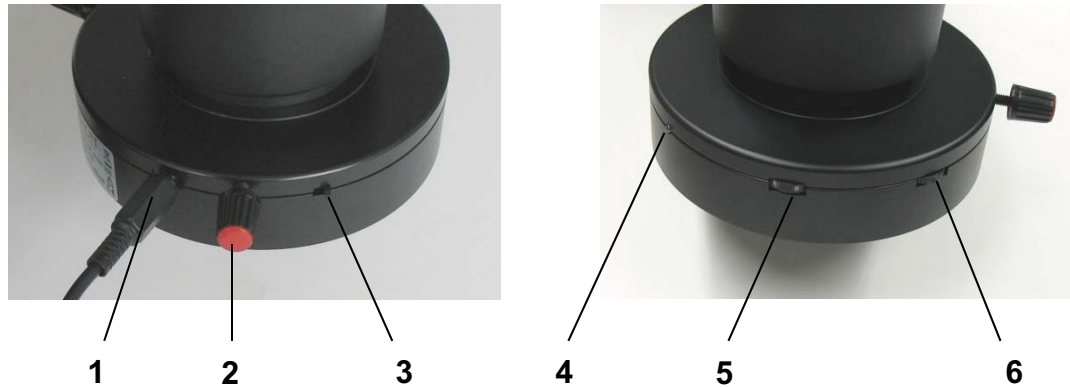
Insert the barrel connector (1) of the power supply (F) into the DC socket provided on the ringlight (A). The plug connection of the power supply is interchangeable for the EU, UK, US and AU. The plug connection needs to be connected to the mains supply (100-240 V AC, 50-60 Hz).

Attach the ringlight (A) to the microscope objective by tightening both thumb screws (2) so that the green control light (4) is facing the user. The inner diameter of the ringlight (A) is 66 mm. Suitable adapters to connect objectives with other diameters are available (see point 7 of these operating instructions).

Switch on the ringlight by flicking the switch (3) and set the required brightness by adjusting the thumb wheel (5). The green indicator light (4) will be on when the instrument is switched on.



### Ringlight Plus



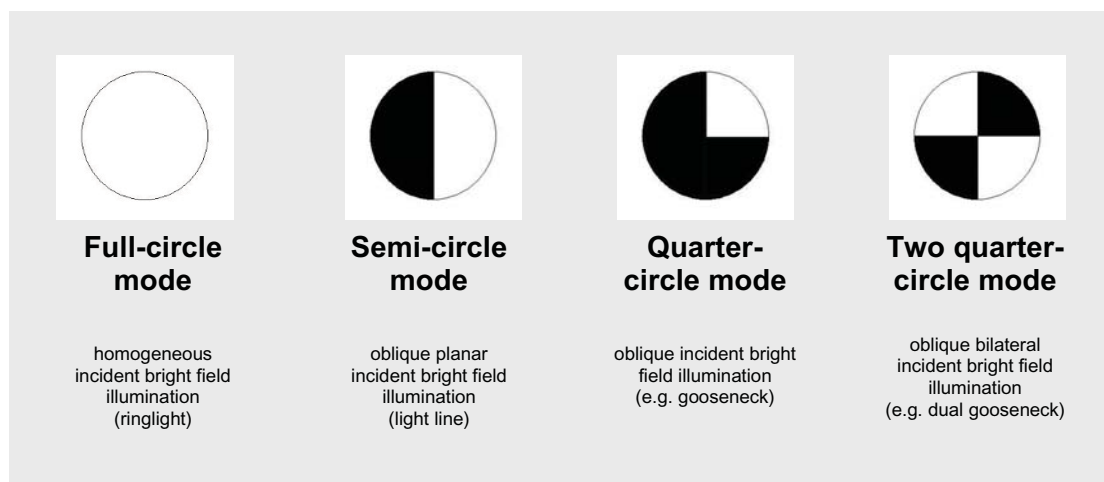
Attachment to the microscope objective, the power connection, on/off switching and brightness adjustment do not differ from the basic version. See the description in the “Ringlight” section above.

#### Additional functions:

The EasyLED Ringlight Plus has an additional function for controlling segments, which makes it possible to regulate the LED ring as individual segments, each with 12 LEDs, using a “jog dial” switch (6). This control lets the user achieve full-circle, semi-circle, quarter-circle and two quarter-circle illumination as well as rotations in both directions.

#### Setting up segment mode:

With each press of the “jog dial” switch (6) the illumination switches from full-circle mode to semi-circle mode to quarter-circle mode to two quarter-circle mode and back to full-circle mode. When first switched on, the ringlight always starts in full-circle mode.



## EasyLED - Operating Instructions

### Manual rotation:

Each see-sawing of the “jog dial” switch (6) to the right rotates the illuminated LED circle segment in 1/8 circle steps to the right.

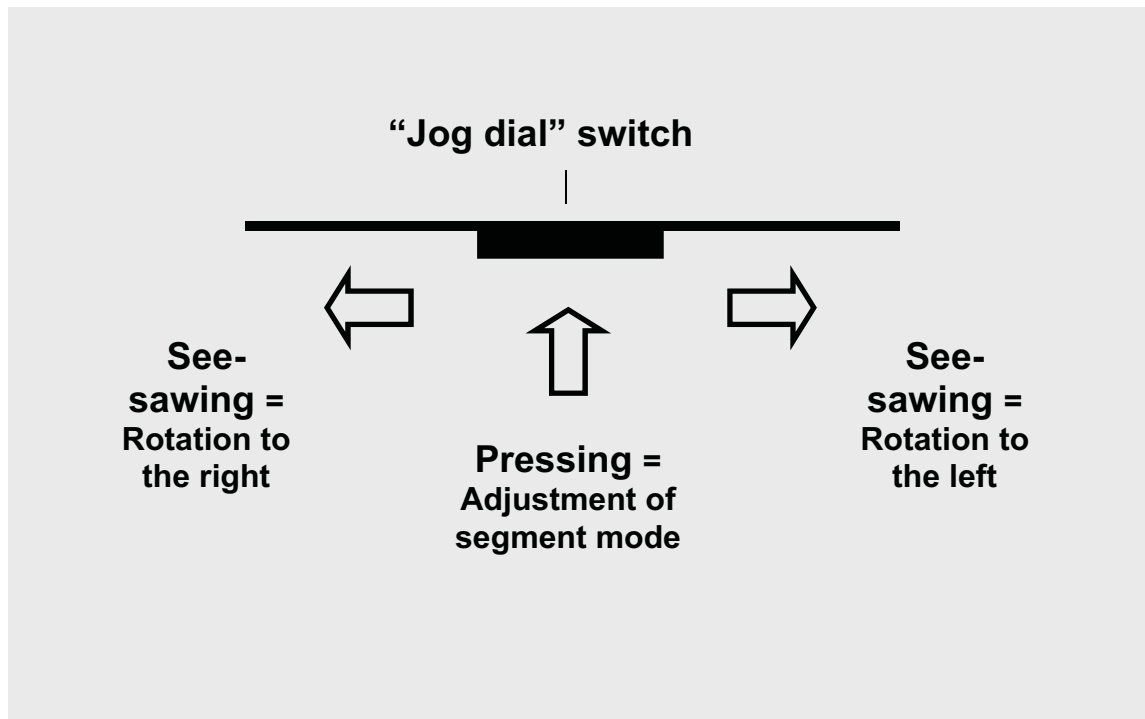
Each see-sawing of the “jog dial” switch (6) to the left rotates the illuminated LED circle segment in 1/8 circle steps to the left.

### Automatic rotation:

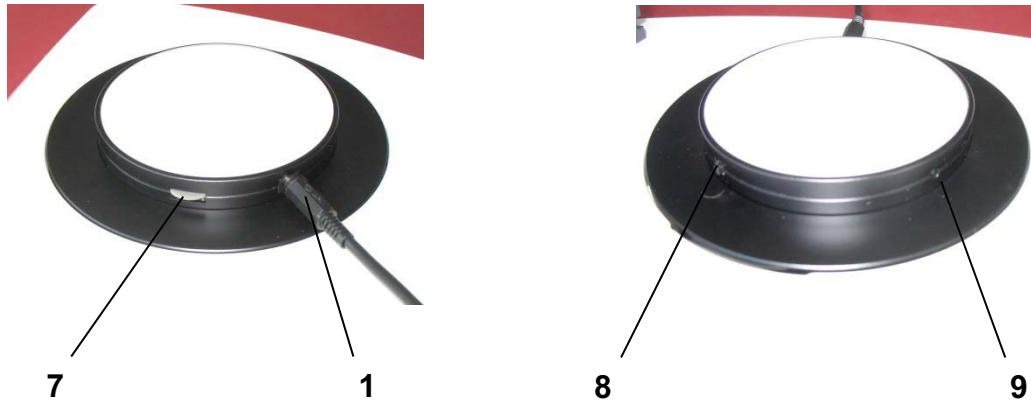
When the “jog dial” switch (6) is pressed and held (for more than 2 seconds) to the right, the illuminated LED circle segment begins to automatically rotate in 1/8 circle steps to the right.

When the “jog dial” switch (6) is pressed and held (for more than 2 seconds) to the left, the illuminated LED circle segment begins to automatically rotate in 1/8 circle steps to the right.

The automatic rotation stops as soon as the “jog dial” switch is switched arbitrarily.



### Transmitted Light Stage



Insert the barrel connector (1) of the power supply (F) into the DC socket provided on the Transmitted Light Stage (B). The plug connection of the power supply is interchangeable for the EU, UK, US and AU. The plug connection needs to be connected to the mains supply (100-240 V AC, 50-60 Hz).

Position or attach the Transmitted Light Stage (B) in the notch provided on the microscope stand so that the green control light (9) is facing the user. The basic version of the Transmitted Light Stage (B) has a diameter of 84 mm. To connect stands with different notch diameters, Transmitted Light Stages with correspondingly matched adapter feet are available (see point 7 of these operating instructions).

Switch on the Transmitted Light Stage (B) by flicking the switch (8) and set the required brightness by adjusting the thumb wheel (7). The green indicator light (9) will be on when the instrument is switched on.

### 5. Maintenance

The system EasyLED Series is maintenance-free.

To clean the outside of the components, use a soft dry cloth or commercially available plastic cleaning cloths.

The use of cleaning agents, alcohol or any other type of chemicals is not permitted.

### 6. Technical data

Properties		Values
<b>General information</b>		
Type description		EasyLED Ringlight, Ringlight Plus
Dimensions (OD x H, ID)	mm	114 x 29, 66
Type description		EasyLED Transmitted Light Stage
Dimensions (OD x H)	mm	84 x 16
Relative humidity*	%	up to 31°C ambient temperature: 85%
		31°C to 40°C ambient temperature: linearly decreasing to 75%
Air pressure*	hPa	800 ... 1,060
Transport and storage		
Temperature	°C	-20 ... +70
Rel. humidity	%	10 ... 95 (non-condensing)
Air pressure	hPa	500 ... 1,200
<b>Electrical information</b>		
Operating voltage, frequency		100 - 240 V ~ 50/60 Hz
Rated instrument voltage	V	12 DC
Rated instrument current	A	max. 0.5
Power consumption	VA	max. 6
Protection class - power supply unit		II
Diodes		High Power LED
Average lifetime of LEDs	... h	50,000 (luminous flux drop to 70%)

## EasyLED - Operating Instructions

<b>Lighting information</b>		
Type description		EasyLED Ringlight
Max. light intensity	lx	90,000 (at a working distance of 75 mm)
Type description		EasyLED Ringlight Plus
Max. light intensity	lx	140,000 (at a working distance of 65 mm)
Type description		EasyLED Transmitted Light Stage
Max. luminance	cd/m <sup>2</sup>	12,000
Colour temperature	K	approx. 5,600
Approvals		CE (power supply unit CE, UL, PSE)
EMC emission class		B

The right is reserved to make changes in the design and supplied items within the scope of on-going technical development.

## 7. Spare parts and accessories

Transmitted Light Stage	Ø 84 mm, incl. controller and power supply	600400
Filters	Polarisation filter for spot system, rotatable	600600
	Polarisation filter system for ringlight (polariser and analyser)	400550
	Polarisation filter attachment for transmitted light stage	158500
	Colour filter for spot, red	600650
	Colour filter for spot, blue	600660
	Colour filter for spot, green	600670
	Colour filter for spot, yellow	600680
Accessories	Diffuser for ringlight	400570
	Protection glass for ringlight	400560
	Power supply, 12 V for ringlight and transmitted light stage	600920

Adapters designed to establish a connection to various microscope objectives and stands are available on request.

## EasyLED - Operating Instructions



### **WEEE Declaration**

High-quality materials and components have been used during the development and the production of your SCHOTT product. This symbol means that electrical and electronic equipment must be disposed of separately from your household waste after they have reached their End of Life.

SCHOTT AG Lighting and Imaging have arranged for a return system that customers can use to dispose of their equipment. Please make use of this system to dispose of your product. Join us in helping preserve the environment in which we live. For more information on our return system, log on to [www.schott.com/lightingimaging/recycle](http://www.schott.com/lightingimaging/recycle).



Distribution in the UK & Ireland



**Lambda Photometrics Limited**

Lambda House Batford Mill

Harpenden Herts AL5 5BZ

United Kingdom

**E: [info@lambdaphoto.co.uk](mailto:info@lambdaphoto.co.uk)**

**W: [www.lambdaphoto.co.uk](http://www.lambdaphoto.co.uk)**

**T: +44 (0)1582 764334**

**F: +44 (0)1582 712084**