## Polarising microscopes KERN OPO-1





Bertrand lens,  $\lambda$  Slip, 360° rotatable analyser



Center-adjustable and turnable polarisation stage



"Swing-Out" condenser

#### **PROFESSIONAL LINE POL**

The flexible and powerful polarising microscope for all professional applications with reflected and transmitted light

#### Features

STANDARD

- This device is a professional, fully-equipped polarising microscope, which uses the polarisation of light to analyse minerals, crystals and isotropic materials
- The KERN OKO 185 is a combi variant of LED incident illumination and LED transmitted illumination. A height-adjustable 0.9/0.13 Swing-out Abbe condenser which can be centred for complete Köhler illumination are part of the standard version.
- A 360° revolving stage with 1° division, 6' fine division and locking function is integrated into all series as standard
- As standard all series are fitted with a complete polarising unit with scale, a Bertrand lens, a  $\lambda$  + 1/4  $\lambda$  Slip as well as a quartz wedge
- A large selection of accessories such as, for example, a mechanical stage attachment as well as further objectives for a long working distance and filter units are also available
- A protective dust cover, eye cups, as well as multi-lingual user instructions are included in the scope of delivery
- A C-Mount adapter is required to connect a camera. You can select this adapter from the following model outfit list
- Please find detailed information in the following model outfit list

#### Scope of application

• Mineralogy, texture observations, material testing, observation of crystals

#### Applications/Samples

 More complex samples with polarising properties

#### **Technical data**

- Infinity optical system
- Quintuple nosepiece
- Siedentopf 30° inclined
- Diopter adjustment: Both-sided
- Overall dimensions W×D×H
   500×200×500 mm
- Net weight approx. 14,5 kg

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TRINO	ABBE	LED	POLAR	INFINITY	SCALE	230 V	1 DAY

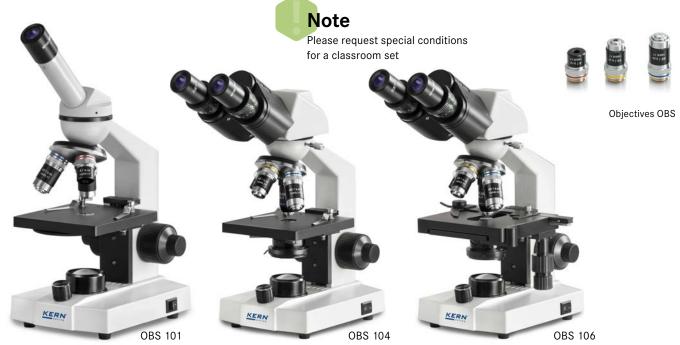
Model	Standard configuration							
KERN	Tube Eyepiece Objective qu		Objective quality	Objectives	Illumination			
OPO 185	Trinocular	HWF 10×/Ø 20 mm	Infinity Plan	Non-stress 4×/10×/20×/40×/50×	5W LED (incident + transmitted)			



# Polarising microscopes KERN OPO-1

Model outfit		Model KERN	Order number				
		OPO 185					
Eyepieces	HWF 10×/20 mm	✓	OBB-A1591				
(23,2 mm)	HWF 10×/20 mm (reticule 0,1 mm) (adjustable)	✓	OBB-A1592				
	4×/0,10 W.D. 12,1 mm	✓	OBB-A1294				
Non-stress Infinity	10×/0,25 W.D. 4,64 mm	✓	OBB-A1289				
Plan objectives (transmitted)	20×/0,40 (spring-loaded) W.D. 2,41 mm	✓	OBB-A1290				
(transmitted)	40×/0,66 (spring-loaded) W.D. 0,65 mm	✓ 0 0 √ 0 ✓ √ ✓	OBB-A1292				
	5×/0,13 W.D. 16,04 mm	0	OBB-A1593				
Non-stress	10×/0,25 W.D. 18,48 mm	0	OBB-A1594				
Infinity Plan objectives	20×/0,40 W.D. 8,35 mm	0	OBB-A1291				
(incident) for long working distance	50×/0,70 (spring-loaded) W.D. 1,95 mm	✓	OBB-A1295				
C C	100×/0,85 (dry) (spring-loaded) W.D. 3,00 mm	0	OBB-A1595				
Trinocular tube	<ul> <li>Siedentopf 30° inclined</li> <li>Interpupillary distance 48 – 76 mm</li> <li>Light distribution 100:0</li> </ul>	*					
Analyser unit with scale	360° rotatable, lockable	*					
Bertrand lens	Insertable, center-adjustable	✓	OBB-A1121				
λ + ¼ λ Slip	$\lambda$ Slip and 1/4 $\lambda$ Slip (combination)	✓	OBB-A1316				
Quartz wedge	I – IV Class	✓	OBB-A1321				
Revolving round stage	360° rotatable, center-adjustable, division 1°, Vernier division 6'	✓					
Polarising attached mechanical stage	Polarising attached mechanical stage	0	OBB-A 1337				
Swing-out condenser	N.A. 0,9/0,13 swing-out achromatic condenser (aperture diaphragm)	4	OBB-A1107				
Polarising unit with scale (transmitted)	360° rotatable, lockable	*					
Koehler illumination	5 W LED spare bulb (transmitted)						
Illumination polarising unit	5 W LED spare bulb (incident)	✓	OBB-A1589				
	Blue	✓	OBB-A1170				
Colour filters	Green	0	OBB-A1188				
for transmitted illumination	Yellow	0	OBB-A1165				
	Grey	0	OBB-A1183				
	1×	0	OBB-A1514				
C-Mount	0,75×	0	OBB-A1590				
	0,5× (focus adjustable)	0	OBB-A1515				
	1	✓ = Include	$\checkmark$ = Included with delivery				

## Compound microscope KERN OBS-1



## EDUCATIONAL LINE

# The school microscope – For the first steps in microscopy and for use in biology lessons

#### Features

Q

360°

0

MONO

00

BINO

- The KERN OBS range is a solid and simple school microscope range, which is easy to use due to its intuitive control elements
- The continuously dimmable 0.5W LED guarantees optimum illumination of the samples and also ensures long service life. Mobile use is also no problem through the use of rechargeable batteries
- The simple 0.65 condenser on the OBS 101 (condenser disc) and the OBS 102 (fixed condenser) ensures the very best concentration of light and illumination of the sample. The OBS 103, 104, 105 and 106 models have a 1.25 Abbe condenser which STANDARD

**∧** Đ

LED

ABBE

**■→**)

RECHARGE

230 V

1 DAY

is height-adjustable and can therefore be focussed and has an aperture diaphragm, which ensures the very best concentration of light

- To focus the object, all models have a coarse and fine focusing knob on both sides. The mechanical stage enables you to work with the samples and move them rapidly (only for OBS 105, 106)
- A large selection of different eyepieces and objectives is also available
- Please find detailed information in the following model outfit list

#### Scope of application

• Primary school, secondary school, training, hobby use

#### **Applications/Samples**

• Translucent, thin, high-contrast, less complex samples (e.g. plant tissue, coloured cells/ parasites)

#### **Technical data**

- Finite optical system (DIN)
- Triple (OBS 101, 102) or quadplex (OBS 103, 104, 105, 106) nosepiece
- Tube 45° (OBS 101, 102, 103, 105) or 30° (OBS 104, 106) inclined/360° rotatable
- Diopter adjustment: Both-sided (for binocular models)
- Overall dimensions W×D×H 130×300×310 mm
- Net weight approx. 3 kg

not OBS 101, 102								
Model	Standard configuration							
KERN	Tube	Eyepiece	Objective quality	Objectives	Illumination	Stage		
OBS 101	Monocular	WF 10×/Ø 18 mm	Achromatic		0,5W LED (transmitted) (battery incl., rechargeable)	fix		
OBS 102	Monocular	WF 10×/Ø 18 mm	Achromatic		0,5W LED (transmitted) (battery incl., rechargeable)	fix		
OBS 103	Monocular	WF 10×/Ø 18 mm	Achromatic	 4 × (10 × (40 ×	0,5W LED (transmitted) (battery incl., rechargeable)	fix		
OBS 104	Binocular	WF 10×/Ø 18 mm	Achromatic	4×/10×/40×	0,5W LED (transmitted) (battery incl., rechargeable)	fix		
OBS 105	Monocular	WF 10×/Ø 18 mm	Achromatic		0,5W LED (transmitted) (battery incl., rechargeable)	mechanical		
OBS 106	Binocular	WF 10×/Ø 18 mm	Achromatic		0,5W LED (transmitted) (battery incl., rechargeable)	mechanical		



# Compound microscope KERN OBS-1

Model outfit			Мо	del KE	RN		Order number		
		OBS 101	OBS 102	OBS 103	OBS 104	OBS 105	OBS 106		
	WF 10×/Ø 18 mm	1	~	1	11	1	44	OBB-A1473	
Eyepieces	WF 16×/Ø 13 mm	0	0	0	00	0	00	OBB-A1474	
(23,2 mm)	WF 20×/Ø 11 mm	0	0	0	00	0	00	OBB-A1475	
	WF 10×/Ø 18 mm (with Pointer)	0	0	0	0	0	0	OBB-A1561	
	4×/0,10 W.D. 18,0 mm	✓	~	~	~	~	~	OBB-A1476	
	10×/0,25 W.D. 7,0 mm	✓	~	~	~	~	~	OBB-A1477	
Achromatic objectives	40×/0,65 (spring-loaded) W.D. 0,53 mm	✓	~	~	~	~	~	OBB-A1478	
05,001100	60×/0,85 (spring-loaded) W.D. 0,1 mm	0	0	0	0	0	0	OBB-A1479	
	100×/1,25 (oil) (spring-loaded) W.D. 0,07 mm	0	0	0	0	0	0	OBB-A1480	
	4×/0,10 W.D. 14,5 mm	0	0	0	0	0	0	OBB-A1562	
	10×/0,25 W.D. 5,65 mm	0	0	0	0	0	0	OBB-A1563	
E-Plan	40×/0,65 (spring-loaded) W.D. 0,85 mm	0	0	0	0	0	0	OBB-A1564	
objectives	100×/1,25 (oil) (spring-loaded) W.D. 0,07 mm	0	0	0	0	0	0	OBB-A1565	
	100×/0,80 (dry) (spring-loaded) W.D. 0,15 mm	0	0	0	0	0	0	OBB-A1442	
	Plan 100×/1,0 (water) (spring-loaded) W.D. 0,18 mm	0	0	0	0	0	0	OBB-A1441	
Monocular tube	45° inclined/360° rotatable	<ul> <li>✓</li> </ul>	~	1		1		OBB-A1471	
Binocular tube	<ul> <li>30° inclined/360° rotatable</li> <li>Interpupillary distance 55-75 mm</li> <li>Diopter adjustment: Both-sided</li> </ul>				~		*	OBB-A1472	
Fixed stage	<ul> <li>Stage size W×D 110×120 mm</li> <li>Coaxial coarse and fine focusing knobs, scale: 2,5 μm</li> </ul>	~	~	~	~				
Mechanical stage	<ul> <li>Stage size W×D 115×125 mm</li> <li>Travel 75×18 mm</li> <li>Coaxial coarse and fine focusing knobs, scale: 2,5 µm</li> </ul>					~	*		
	Simple condenser N.A. 0,65	~							
Condenser	Simple condenser N.A. 0,65 (aperture diaphragm)		~						
	Abbe N.A. 1,25 (aperture diaphragm)			1	~	1	✓		
Illumination	0,5 W LED illumination system (transmitted) (rechargeable)	•	~	~	~	~	*		
	Blue			1	✓	1	✓	OBB-A1466	
<b>Colour filters</b> for transmitted illumination	Green			0	0	0	0	OBB-A1467	
	Yellow			0	0	0	0	OBB-A1468	
	Grey			0	0	0	0	OBB-A1184	

 $\checkmark$  = Included with delivery

O = Option

# **KERN OPTICS CATALOGUE 2022**

#### Pictograms



360° rotatable microscope head



Monocular Microscope For the inspection with one eye



**Binocular Microscope** For the inspection with both eyes

Trinocular Microscope



For the inspection with both eyes and the additional option for the connection of a camera



Abbe Condenser With high numerical aperture for the concentration and the focusing of light



Halogen illumination For pictures bright and rich in contrast



LED illumination Cold, energy-saving and especially long-life illumination



Incident illumination For non-transparent objects



Transmitting illumination For transparent objects



Fluorescence illumination For stereomicroscopes



Fluorescence illumination for compound microscopes

With 100W mercury lamp and filter



Fluorescence illumination C for compound microscopes FL-LED With 3 W LED illumination and filter



Phase contrast unit For a higher contrast



Darkfield condenser/unit For a higher contrast due to indirect illumination



Polarising unit To polarise the light



Infinity system Infinity corrected optical system



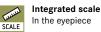
Zoom magnification For stereomicroscopes



Auto-focus For automatic control of the focus level



Parallel optical system For stereomicroscopes, enables fatigue-proof working



SD card For data storage



USB 2.0 digital camera For direct transmitting of the picture to a PC USB 2.0



USB 3.0 digital camera For direct transmitting of the picture to a PC



WLAN data interface For transmitting of the picture to a



mobile display device



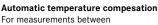
HDMI digital camera For direct transmitting of the picture to a display

SOFTWARE

PC software To transfer the measurements from the device to a PC

device

AUTO ATC



For measurements between 10 °C and 30 °C



Protection against dust and water splashes IPxx: The type of protection is shown in the pictogram cf. DIN EN 60529:2000-09, IEC 60529:1989+A1:1999+A2:2013



**Battery operation** Ready for battery operation. The battery type is specified for each device.



Battery operation rechargeable Prepared for a rechargeable battery



Plug-in power supply

230V/50Hz in standard version for EU. On request GB, AUS or USA version.



#### Integrated power supply unit

Integrated in microscope. 230V/50Hz standard EU. More standards e.g. GB, AUS or USA on request.

Package shipment

The time required to manufacture the 1 DAY product internally is shown in days in the pictogram.

### Abbreviations

C-Mount	Adapter for the connection of a camera to a trinocular microscope	LWD	Long Working Distance	SWF	Super Wide Field (Field number at least Ø 23 mm for 10× eyepiece)
FPS	Frames per second	N.A.	Numerical Aperture	W.D.	Working Distance
H(S)WF	High (Super) Wide Field (Eyepiece with high eye point for wearers of glasses)	SLR camera	Single-Lens Reflex camera	WF	Wide Field (Field number up to Ø 22 mm for 10× eyepiece)

#### Your KERN specialist dealer:

