



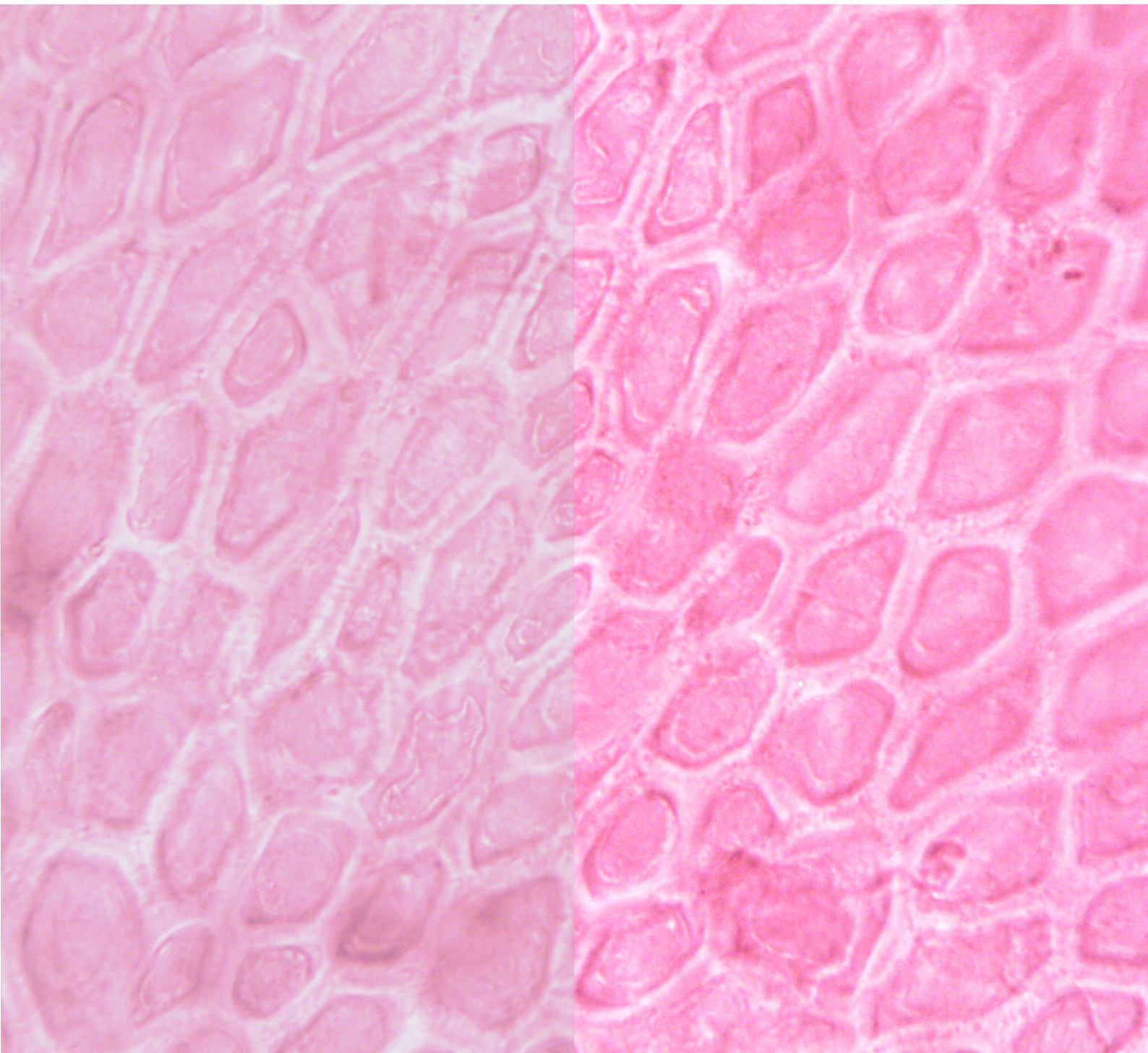
EDUCATIONAL MICROSCOPES

BETTER SYNDICATE CO., LTD.

OPTIKA[®]

M I C R O S C O P E S

I T A L Y



BIOLOGICAL MICROSCOPES

B-150 Series



Middle-Level Biological Microscopes For Students

The Most Comprehensive Series Dedicated To Students

A VARIETY OF CONFIGURATIONS TO MEET EVERY NEEDS

- » Designed to fulfill primary/secondary schools and educational labs
- » 18 mm field number for a wide observation area
- » Cordless use, totally independent from mains/battery connection (R-PL Line)
- » Sturdy and durable for extended lifetime; compact and intuitive
- » External power supply for enhanced safety and convenient servicing



PROFESSIONAL FEATURES FOR... WELL, EVERYONE

- » High eyepoint eyepieces for glasses wearers
- » N-PLAN objectives for a total field flatness on 18 mm (R-PL Line)
- » Li-ion battery for unparalleled duration & fast recharge (R-PL Line)
- » Automatic light control to forget manual adjustment (ALC Line)
- » Simple polarization versions with polarizer and analyzer (P Line)



Inventors Of A New Way To Teach Microscopy

1

Educational

100X OIL/WATER OBJECTIVE - ONLY AVAILABLE AT OPTIKA

- » Same objective for oil and water use
- » Oil represents the best media for high numerical aperture
- » Water combines results with convenience for educational purposes
- » Save time - forget about tedious cleaning and maintenance
- » Save money - no additional expenses due to inappropriate cleaning

100x Oil

100x Water

X-LED¹ FOR 65,000 HOURS OF OPERATION - ONLY AVAILABLE AT OPTIKA

- » State-of-the-art illumination system for incomparable light intensity
- » Exclusive lens & collector design, unmatched uniformity & brightness
- » Excellent color fidelity, constant pure-white color temperature
- » Money & energy saving, cutting electricity bills by 90%
- » Simple polarization versions with polarizer and analyzer (P Line)

Halogen

X-LED¹



Multi-plug power supply

Plenty Of Smart & Innovative Light-Related Technologies

AUTOMATIC LIGHT CONTROL - ONLY AVAILABLE AT OPTIKA (ALC LINE)

- » Choose the light intensity according to your preference
- » Press the ALC button and the light will be automatically re-adjusted
- » When another objective is used
- » When the diaphragm aperture changes
- » When processing samples with different opacity

STEP 1

Set the brightness according to your preferences.



STEP 2

Press the ALC button to save the brightness level.



STEP 3

Forget about the illumination!

The microscope will automatically adjust the brightness for you, in case of:

- Another objective is used
- The diaphragm aperture is changed
- Another specimen with different opacity is processed



Regulation of diaphragm aperture

Plenty Of Smart & Innovative Light-Related Technologies

1

Educational

LI-ION BATTERIES PROS (on B-150R models):

- » **Reliable:** Significantly lower self-discharge rate than NiMH
- » **Faster recharge:** Li-Ions can be charged in about 6 hours
- » **Number of charges:** approx. 2,000 times (+100% than NiMH batteries)
- » **No "memory effect":** can be charged at any time, without effects
- » Temperature tolerance to low temperature (more than NiMH batteries)



B-150 Series



A very comprehensive range of modern microscopes ideal for students and primary/secondary schools, available in brightfield or polarized light. Provided with achromatic or PLAN achromatic lenses, FN 18 high eyepoint eyepieces, finite optical system, coaxial focusing, fixed or mechanical stage and powerful, uniform, white color temperature 1 W X-LED1 illumination.

Slim and easy to carry, all the models are equipped with all the main controls to start learning how to use an advanced microscope and with long lasting LED illumination to provide over 20 years of use

A variety of configurations to meet every needs

Configurations for every taste, including regular brightfield and the one ready for polarization analysis (P Line), automatic light control (ALC Line), with built-in cameras for image acquisition (D Line) and cordless versions with advanced features (R-PL Models)

High eyepoint eyepieces for glasses wearers

These eyepieces are designed in such a way that the exit pupil is further away from the eye lens than standard eyepieces, being are well suited for eyeglasses wearers

X-LED¹ - State-of-the-art illumination system for incomparable light intensity

Provided with an exclusive lens & collector design, OPTIKA X-LED technology ensures unmatched uniformity & brightness (more than a 20 W halogen lamp) for excellent color fidelity with constant pure-white color temperature





100x oil/water objective: same objective for dual use

This new, revolutionary objective is something you've never seen before! Oil ensures the best performance achievable; water represents the most convenient solution as eliminates tedious cleaning

Incomparable comfort with the exclusive Automatic Light Control (ALC Line)

Light intensity is automatically adjusted by the microscope: no matter if the aperture of the diaphragm changes, if another objective is used, and if the opacity of the sample is different...the microscope will set the light!

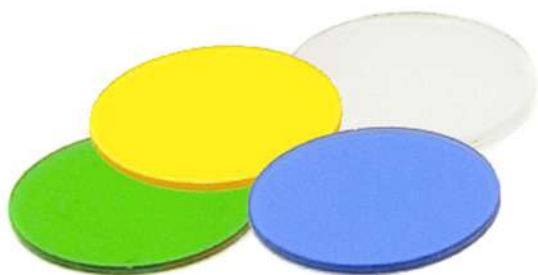


N-PLAN objectives combined with exclusive Li-ion battery (R-PL line)

Laboratory grade optics meets the latest technology in terms of battery, for unparalleled lifetime (2000 charges), extended autonomy (15 hours/charge) and incredibly fast recharging time (6 hours)

External power supply for enhanced safety and convenient servicing

OPTIKA's safety first approach drives to the use of a low voltage, multi-plug, external power supply in order to prevent any risk of electric shock and heatflow inside the unit



GET THE MOST OUT OF OUR ACCESSORIES

M-974 - Blue filter

Increase the colour temperature of light (toward the blue)

M-976 - Green filter

Optimize the resolution of phase contrast

M-978 - Yellow filter

Decrease the colour temperature of light (toward the red)

M-988 - Frosted glass filter

Increase the uniformity of illumination, even further

B-150 Series - Standard Models

B-159



Binocular microscope ideal for students and primary schools, with four achromatic lenses (1000x), FN 18 high eyepoint eyepieces, finite optical system, coaxial focusing, mechanical stage, Abbe condenser and powerful, uniform, white color temperature 1 W **X-LED¹** illumination. Slim and easy to carry, it is equipped with all the main controls to start learning how to use an advanced microscope and with long lasting LED illumination to provide over 20 years of use.

Head: Binocular, 30° inclined; 360° rotating.

Dioptic adjustment: Left eyepiece.

Eyepieces: WF10x/18 mm, high eyepoint, secured by screw.

Nosepiece: Quadruple ball bearings revolving nosepiece.

Objectives:

- Achromatic HC type 4x/0.10, W.D. 18 mm.
 - Achromatic HC type 10x/0.25, W.D. 7 mm.
 - Achromatic HC type 40x/0.65, W.D. 0.53 mm.
 - Achromatic HC type 100x/1.25, W.D. 0.13 mm (oil/water).
- All with anti-fungus treatment.

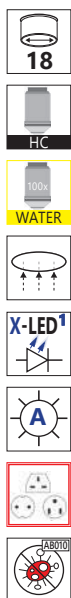
Specimen stage: Mechanical stage, 125x116 mm, 70x30 mm X-Y movement range. Vernier scale on the two axes, accuracy: 0.1 mm.

Focusing: Coaxial coarse and fine focusing mechanism with limit stop to prevent the contact between objective and specimen. Adjustable tension of coarse focusing knob.

Condenser: Abbe N.A. 1.25, pre-centered, focusable, with iris diaphragm.

Illumination: X-LED¹ with white 1 W LED and brightness control. Color temperature: 6,300 K. Multi-plug 100-240Vac/5Vdc external power supply.

B-159ALC



Binocular microscope ideal for students and primary schools, with four achromatic lenses (1000x), FN 18 high eyepoint eyepieces, finite optical system, coaxial focusing, mechanical stage, Abbe condenser and powerful, uniform, white color temperature 1 W X-LED¹ illumination. Slim and easy to carry, it is equipped with all the main controls to start learning how to use an advanced microscope and with long lasting LED illumination to provide over 20 years of use. The exclusive **ALC** will automatically adjust the brightness according to your preferences.

Head: Binocular, 30° inclined; 360° rotating (when ALC cable is unplugged).

Dioptic adjustment: Left eyepiece.

Eyepieces: WF10x/18 mm, high eyepoint, secured by screw.

Nosepiece: Quadruple ball bearings revolving nosepiece.

Objectives:

- Achromatic HC type 4x/0.10, W.D. 18 mm.
 - Achromatic HC type 10x/0.25, W.D. 7 mm.
 - Achromatic HC type 40x/0.65, W.D. 0.53 mm.
 - Achromatic HC type 100x/1.25, W.D. 0.13 mm (oil/water).
- All with anti-fungus treatment.

Specimen stage: Mechanical stage, 125x116 mm, 70x30 mm X-Y movement range. Vernier scale on the two axes, accuracy: 0.1 mm.

Focusing: Coaxial coarse and fine focusing mechanism with limit stop to prevent the contact between objective and specimen. Adjustable tension of coarse focusing knob.

Condenser: Abbe N.A. 1.25, pre-centered, focusable, with iris diaphragm.

Illumination: X-LED¹ with white 1 W LED and brightness control. Color temperature: 6,300 K. With **ALC** for automatic light control. Multi-plug 100-240Vac/5Vdc external power supply.

B-150 Series - Standard Models

B-159R-PL



Cordless binocular microscope ideal for students and primary schools, with four PLAN achromatic lenses (1000x), FN 18 high eyepoint eyepieces, finite optical system, coaxial focusing, mechanical stage, Abbe condenser and powerful, uniform, white color temperature 1 W **X-LED¹** illumination. Slim and easy to carry, it is equipped with all the main controls to start learning how to use an advanced microscope and with long lasting LED illumination to provide over 20 years of use. The Li-Ion battery ensures unparalleled duration and fast recharge.

Head: Binocular, 30° inclined; 360° rotating.

Dioptric adjustment: Left eyepiece.

Eyepieces: WF10x/18 mm, high eyepoint, secured by screw.

Nosepiece: Quadruple ball bearings revolving nosepiece.

Objectives:

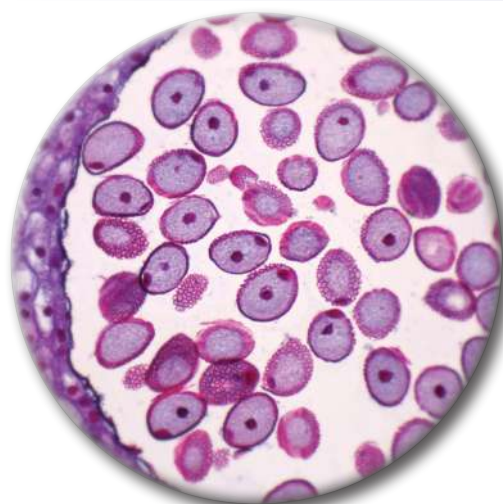
- N-PLAN plan achromatic 4x/0.10, W.D. 15.2 mm.
 - N-PLAN plan achromatic 10x/0.25, W.D. 5.5 mm.
 - N-PLAN plan achromatic 40x/0.65, W.D. 0.45 mm.
 - N-PLAN plan achromatic 100x/1.25, W.D. 0.13 mm (oil/water).
- All with anti-fungus treatment.

Specimen stage: Mechanical stage, 125x116 mm, 70x30 mm X-Y movement range. Vernier scale on the two axes, accuracy: 0.1 mm.

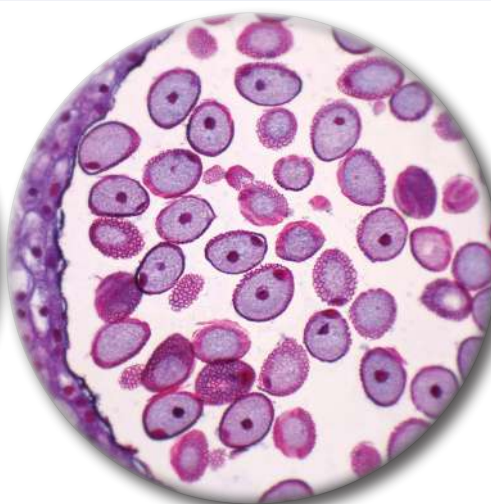
Focusing: Coaxial coarse and fine focusing mechanism with limit stop to prevent the contact between objective and specimen. Adjustable tension of coarse focusing knob.

Condenser: Abbe N.A. 1.25, pre-centered, focusable, with iris diaphragm.

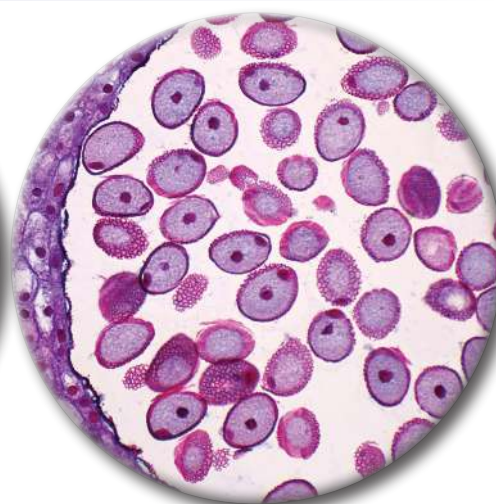
Illumination: X-LED¹ with white 1 W LED and brightness control. Color temperature: 6,300 K. Li-Ion battery for long lasting operation. Multi-plug 100-240Vac/5Vdc external power supply.



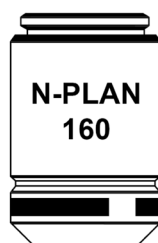
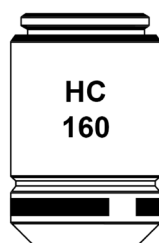
Lily Anther, Mature Pollen Grains, c.s.
Conventional Achromatic Objective



Lily Anther, Mature Pollen Grains, c.s.
OPTIKA HC Objective



Lily Anther, Mature Pollen Grains, c.s.
OPTIKA N-PLAN Objective



HC

N-PLAN

OPTIKA HC: This series of objectives ensures a versatile and reasonably priced entry-level solution for brightfield and simple polarization applications. They are specifically designed to achieve optimal contrast and thus maximize yield on an instrument intended for education on F.N. 18.

OPTIKA N-PLAN: In addition to the advantages of the HC objectives, the total flatness of the field and an even greater contrast are achieved with the N-PLAN series.

B-150 Series - Polarizing Models

B-150P-MRPL



Cordless monocular polarized light microscope ideal for students and primary schools, with three PLAN achromatic lenses (400x), FN 18 high eyepoint eyepiece, finite optical system, coaxial focusing, rotating stage, Abbe condenser and powerful, uniform, white color temperature 1 W **X-LED¹** illumination. Slim and easy to carry, it is equipped with all the main controls to start learning how to use an advanced microscope and with long lasting LED illumination. Rotating swing-out polarizer and sliding-out fixed analyzer included. The Li-Ion battery ensures unparalleled duration and fast recharge.

Head: Monocular, 30° inclined; 360° rotating.

Eyepieces: WF10x/18 mm, high eyepoint, secured by screw.

Nosepiece: Quadruple ball bearings revolving nosepiece.

Objectives:

- N-PLAN plan achromatic 4x/0.10
 - N-PLAN plan achromatic 10x/0.25
 - N-PLAN plan achromatic 40x/0.65.
- All with anti-fungus treatment.

Specimen stage: Rotatable round stage, 120 mm diameter, with sample clips.

Focusing: Coaxial coarse and fine focusing mechanism with limit stop to prevent the contact between objective and specimen. Adjustable tension of coarse focusing knob.

Condenser: N.A. 1.25, pre-centered, fixed, with iris diaphragm.

Illumination: X-LED¹ with white 1 W LED and brightness control. Color temperature: 6,300 K. Li-Ion battery for long lasting operation. Multi-plug 100-240Vac/5Vdc external power supply.

Polarizing filters: Rotating polarizer (swing-out) and fixed analyzer (sliding-out).

B-150P-BRPL



Cordless binocular polarized light microscope ideal for students and primary schools, with three PLAN achromatic lenses (400x), FN 18 high eyepoint eyepieces, finite optical system, coaxial focusing, rotating stage, Abbe condenser and powerful, uniform, white color temperature 1 W **X-LED¹** illumination. Slim and easy to carry, it is equipped with all the main controls to start learning how to use an advanced microscope and with long lasting LED illumination to provide over 20 years of use. Rotating swing-out polarizer and sliding-out fixed analyzer included. The exclusive Li-Ion battery ensures unparalleled duration and fast recharge

Head: Binocular, 30° inclined; 360° rotating.

Dioptic adjustment: Left eyepiece.

Eyepieces: WF10x/18 mm, high eyepoint, secured by screw.

Nosepiece: Quadruple ball bearings revolving nosepiece.

Objectives:

- N-PLAN plan achromatic 4x/0.10
- N-PLAN plan achromatic 10x/0.25
- N-PLAN plan achromatic 40x/0.65. All with anti-fungus treatment.

Specimen stage: Rotatable round stage, 120 mm diameter, with sample clips.

Focusing: Coaxial coarse and fine focusing mechanism with limit stop to prevent the contact between objective and specimen. Adjustable tension of coarse focusing knob.

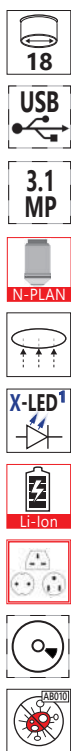
Condenser: N.A. 1.25, pre-centered, fixed, with iris diaphragm.

Illumination: X-LED¹ with white 1 W LED and brightness control. Color temperature: 6,300 K. Li-Ion battery for long lasting operation. Multi-plug 100-240Vac/5Vdc external power supply.

Polarizing filters: Rotating polarizer (swing-out) and fixed analyzer (sliding-out).

B-150 Series - Digital Models

B-150D-MRPL



Cordless digital monocular microscope ideal for students and primary schools, with three PLAN achromatic lenses (400x), FN 18 high eyepoint eyepiece, finite optical system, coaxial focusing, mechanical stage, Abbe condenser and powerful, uniform, white color temperature 1 W **X-LED¹** illumination. Slim and easy to carry, it is equipped with all the main controls to start learning how to use an advanced microscope and with long lasting LED illumination to provide over 20 years of use. The exclusive Li-Ion battery ensures unparalleled duration and fast recharge

Head: Monocular with integrated 1.3 MP camera, 30° inclined; 360° rotating.

Eyepieces: WF10x/18 mm, high eyepoint, secured by screw.

Nosepiece: Quadruple ball bearings revolving nosepiece.

Objectives:

- N-PLAN plan achromatic 4x/0.10
- N-PLAN plan achromatic 10x/0.25
- N-PLAN plan achromatic 40x/0.65

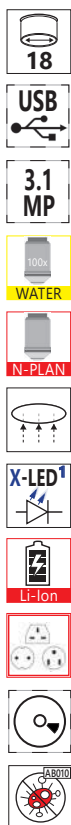
Specimen stage: Mechanical stage, 125x116 mm, 70x30 mm X-Y movement range. Vernier scale on the two axes, accuracy: 0.1 mm.

Focusing: Coaxial coarse and fine focusing mechanism with limit stop to prevent the contact between objective and specimen. Adjustable tension of coarse focusing knob.

Condenser: Abbe N.A. 1.25, pre-centered, focusable, with iris diaphragm.

Illumination: X-LED¹ with white 1 W LED and brightness control. Color temperature: 6,300 K. Li-Ion battery for long lasting operation. Multi-plug 100-240Vac/5Vdc external power supply.

B-150D-BRPL



Cordless digital binocular microscope ideal for students and primary schools, with four PLAN achromatic lenses (1000x), FN 18 high eyepoint eyepieces, finite optical system, coaxial focusing, mechanical stage, Abbe condenser and powerful, uniform, white color temperature 1 W **X-LED¹** illumination. Slim and easy to carry, it is equipped with all the main controls to start learning how to use an advanced microscope and with long lasting LED illumination to provide over 20 years of use. The exclusive Li-Ion battery ensures unparalleled duration and fast recharge

Head: Binocular with integrated 3.2 MP camera, 30° inclined; 360° rotating.

Dioptric adjustment: Left eyepiece.

Eyepieces: WF10x/18 mm, high eyepoint, secured by screw.

Nosepiece: Quadruple ball bearings revolving nosepiece.

Objectives:

- N-PLAN plan achromatic 4x/0.10
- N-PLAN plan achromatic 10x/0.25
- N-PLAN plan achromatic 40x/0.65
- N-PLAN plan achromatic 100x/1.25 (oil/water). All with anti-fungus treatment.

Specimen stage: Mechanical stage, 125x116 mm, 70x30 mm X-Y movement range. Vernier scale on the two axes, accuracy: 0.1 mm.

Focusing: Coaxial coarse and fine focusing mechanism with limit stop to prevent the contact between objective and specimen. Adjustable tension of coarse focusing knob.

Condenser: Abbe N.A. 1.25, pre-centered, focusable, with iris diaphragm.

Illumination: X-LED¹ with white 1 W LED and brightness control. Color temperature: 6,300 K. Li-Ion battery for long lasting operation. Multi-plug 100-240Vac/5Vdc external power supply.

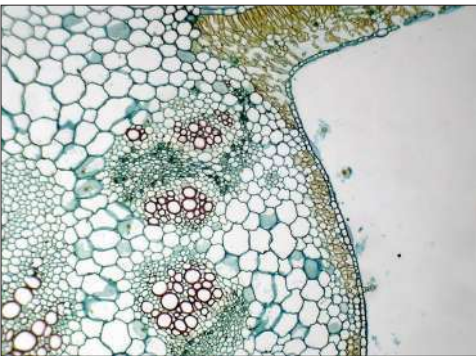
B-150 Series - B-150D Camera specifications

	B-150D-MRPL / B-150D-BRPL
Camera resolution (n° of pixels: W x H)	2048x1536
Color / Monochrome	Color
Sensor Size	1/2.5"
Sensor Technology	CMOS
Sensor Type	APTINA CMOS
Image Format	4/3
Pixel Size (mm)	2.2x2.2
Acquisition technology	Rolling shutter
Sensitivity	0.53 V/lux-second
Signal/Noise Ratio (DB)	40.5
Dynamic range (DB)	66.5
ADC conversion	12 Bit
Color Depth	8 Bit
Exposure time	0.1 - 1.5 sec
Binning	1x1
IR filter	Yes
IR filter range (nm)	380-650 (IR CUT)
Camera resolution (MP)	3.1
USB standard	USB2.0
Frame rate full resolution (fps)	4@2048x1536
Frame rate other resolution (fps)	8@1280x1024; 30@640x480

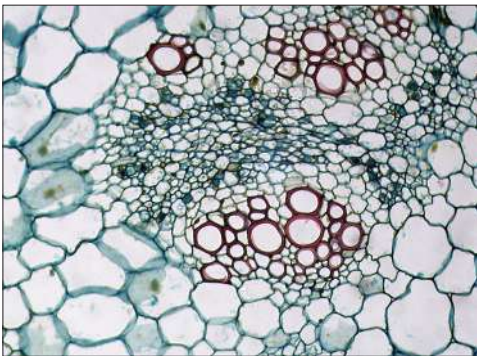
B-150 Series - Optical performance

Eyepiece			10x (M-002.1)		16x (M-003)	
Field number (mm)			18		12	
Objective	N.A.	W.D. (mm)	Total magnification	Field of View (mm)	Total magnification	Field of View (mm)
4x	0.1	18	40x	4.5	64x	3
10x	0.25	7	100x	1.8	160x	1.2
20x	0.4	2	200x	0.9	320x	0.6
40x	0.65	0.53	400x	0.45	640x	0.3
60x	0.8	0.45	600x	0.3	960x	0.2
100x	1.25 (oil/water)	0.13	1000x	0.18	1600x	0.12

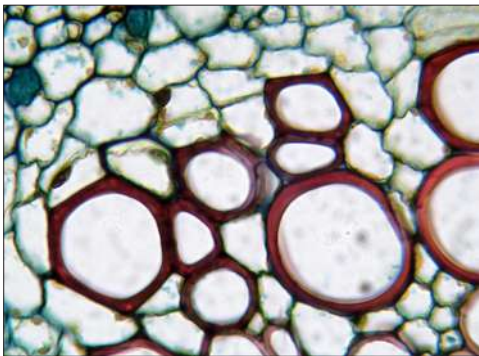
B-150 Series - Zoom comparison



Monocot and dicot - B-157 - 4x objective



Monocot and dicot - B-157 - 10x objective



Monocot and dicot - B-157 - 40x objective

B-150 Series - Digital Video Bundles

1

Educational



Five models of the B-150 series can be equipped with a camera and a 7" LCD screen, both in high definition. In these bundles, the normal head (supplied with the instrument) can be replaced with the digital system in a few minutes. This solution provides a system suitable for viewing specimens by several students at the same time, without removing the possibility of using the microscope in the classical way through the eyepiece.

LCD screen: High definition 7" LCD.

Camera: 1920x1080 pixels, 30fps (video). Up to 1844x1080 pixels (photo).

Storing capacity: On Micro Sd card

Video recording: Yes

Measuring function: Yes, simple line measurement

Models available:

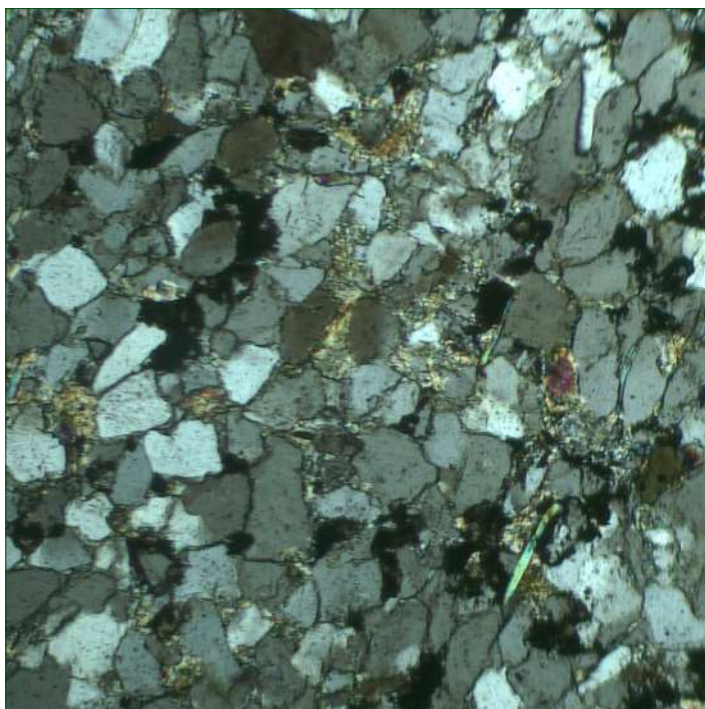
-B-151V: Same features than standard B-151, but delivered as bundle together with the 7" screen with built in camera. **Optical head with eyepiece included.**

-B-153V: Same features than standard B-153, but delivered as bundle together with the 7" screen with built in camera. **Optical head with eyepiece included.**

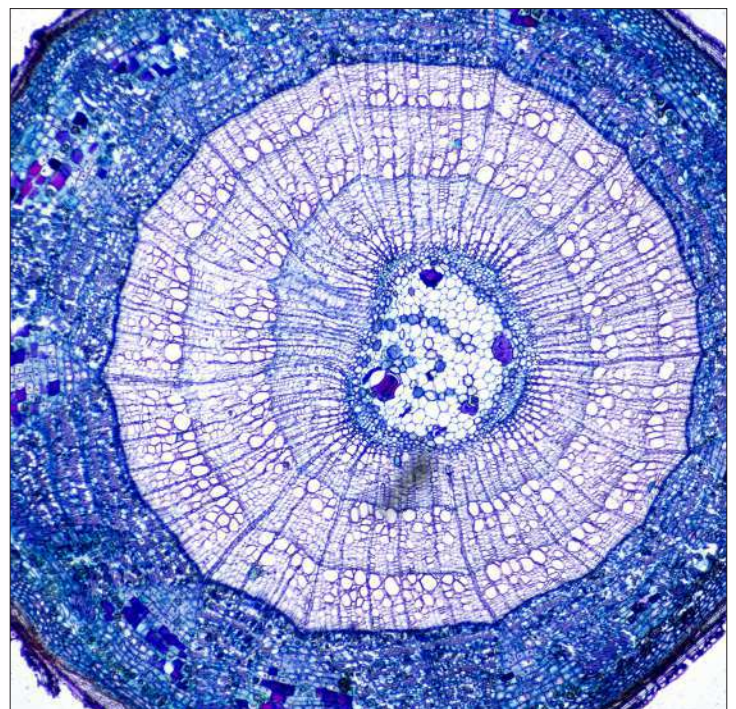
-B-151R-PLV: Same features than standard B-151R-PL, but delivered as bundle together with the 7" screen with built in camera. **Optical head with eyepiece included.**

-B-152R-PLV: Same features than standard B-152R-PL, but delivered as bundle together with the 7" screen with built in camera. **Optical head with eyepiece included.**

-B-159R-PLV: Same features than standard B-159R-PL, but delivered as bundle together with the 7" screen with built in camera. **Optical head with eyepiece included.**



Polarized light observation of quartzite with B-150P-MRPL and 10x objective.



Brightfield observation of tilia three-year stem with B-159 and 20x objective.

OPTIKA[®]
M I C R O S C O P E S
I T A L Y

B-190 Series



Advanced Biological Microscopes For Students

Fulfill the Next Generation Learning Challenges

DEPENDABLE TEACHING IN A MODERN AND ERGONOMIC DESIGN

- » Designed for secondary schools and educational labs
- » 18 mm field number for a wide observation area
- » High eyepoint eyepieces for glasses wearers
- » Sturdy and durable for extended lifetime; compact and intuitive
- » External power supply for enhanced safety and convenient servicing

DIGITAL IMAGING UNIT - ONLY AVAILABLE AT OPTIKA

- » A completely new, revolutionary experience for unparalleled comfort
- » Responsive and smooth control for accurate results in few clicks
- » Large touch screen with 360° rotating and tilting holding solution
- » Simultaneous camera and power connection for long-term operation
- » Easily detachable to be used as a laptop (keyboard sold separately)



Inventors Of A New Way To Teach Microscopy

1

Educational

100X OIL/WATER OBJECTIVE - ONLY AVAILABLE AT OPTIKA

- » Same objective for oil and water use
- » Oil represents the best media for high numerical aperture
- » Water combines results with convenience for educational purposes
- » Save time - forget about tedious cleaning and maintenance
- » Save money - no additional expenses due to inappropriate cleaning

100x Oil

100x Water

X-LED² FOR 65,000 HOURS OF OPERATION - ONLY AVAILABLE AT OPTIKA

- » State-of-the-art illumination system for incomparable light intensity
- » Exclusive lens & collector design, unmatched uniformity & brightness
- » Excellent color fidelity, constant pure-white color temperature
- » Money & energy saving, cutting electricity bills by 90%
- » More efficient brightness than a 30 W halogen lamp

Halogen

X-LED¹



Multi-plug power supply

B-190 Series

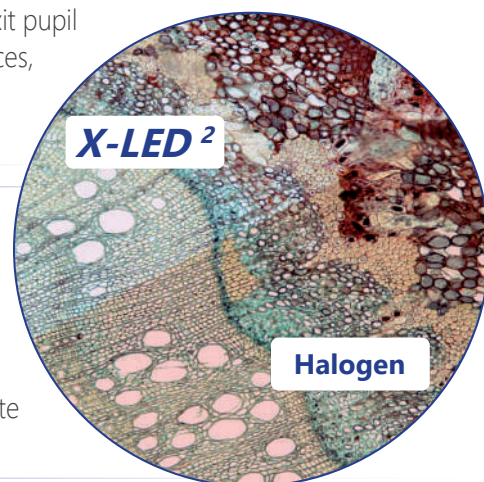
Valuable configurations of modern microscopes ideal for teachers and secondary schools, with four achromatic lenses, FN 18 high eyepoint eyepieces, finite optical system, coaxial focusing, mechanical stage and powerful, uniform, white color temperature 3 W X-LED² illumination. Slim and easy to carry, all the models are equipped with long lasting LED illumination to provide over 20 years of use

High eyepoint eyepieces for glasses wearers

These eyepieces are designed in such a way that the exit pupil is further away from the eye lens than standard eyepieces, being are well suited for eyeglasses wearers

X-LED² State-of-the-art illumination system for incomparable light intensity

Provided with an exclusive lens & collector design, OPTIKA X-LED technology ensures unmatched uniformity & brightness (more than a 30 W halogen lamp) for excellent color fidelity with constant pure-white color temperature



100x oil/water objective: same objective for dual use

This new, revolutionary objective is something you've never seen before! Oil ensures the best performance achievable; water represents the most convenient solution as eliminates tedious cleaning

A completely new, revolutionary experience for unparalleled comfort

B-190TBPL includes built-in camera and Digital Imaging Unit with large touch screen for a smooth and responsive control, with dependable results in few clicks, and providing an extremely comfortable solution for open discussions

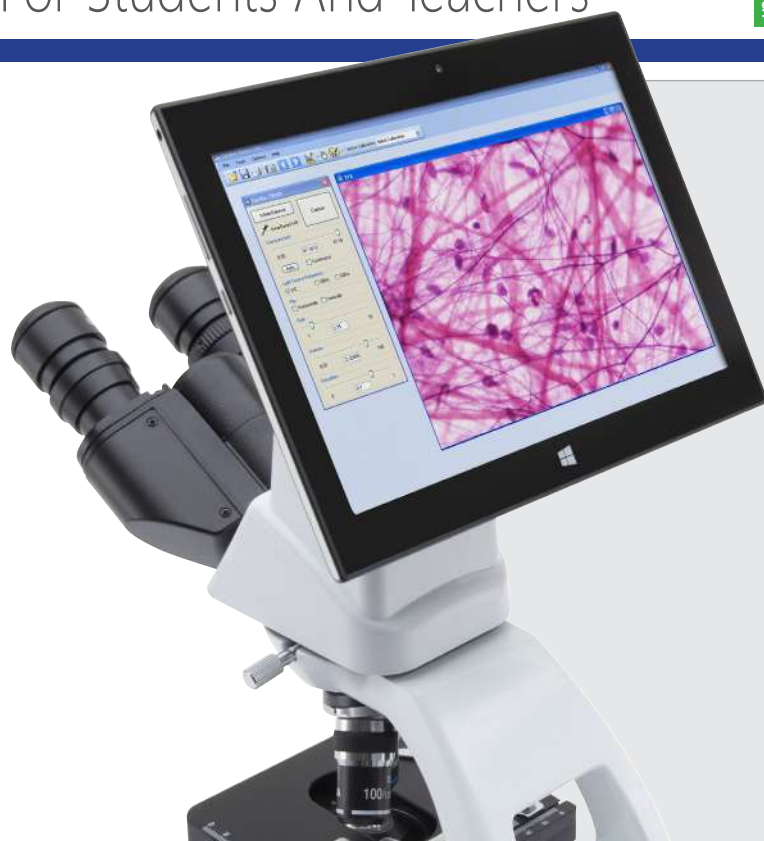
External power supply for enhanced safety and convenient servicing

OPTIKA's safety first approach drives to the use of a low voltage, multi-plug, external power supply in order to prevent any risk of electric shock and heatflow inside the unit

Advanced Biological Microscopes For Students And Teachers

Optimum And Unparalleled Comfort In Use

The B-190TBPL offers you a unique, incomparable solution. It includes a built-in camera and Digital Imaging Unit with large touch screen, for a responsive and smooth control. Simultaneous camera and power connection ensure long-term operation, with dependable results in one click. It provides a reliable and comfortable solution for open discussion: 360° rotating and tilting screen, easily detachable, that can be used as a laptop.



Get the most out of our accessories

ANALYZER

M-174 - Polarizing set

Set for simple polarization analysis. Upgrade your B-190 to a polarizing microscope and look at birefringent samples.

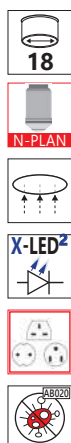


POLARIZER



B-190 Series - Range

B-192sPL



Binocular microscope ideal for teachers and secondary schools, with four N-PLAN objectives (600x), FN 18 high eyepoint, finite optical system, coaxial focusing, mechanical stage, Abbe condenser and powerful, uniform, white color temperature 3 W **X-LED²** illumination. Slim and easy to carry, yet sturdy and resistant, it is equipped with all the main controls to start learning how to use an advanced microscope and with long lasting LED illumination to provide over 20 years of use

Head: Binocular, 30° inclined; 360° rotating.

Dioptic adjustment: Left eyepiece.

Eyepieces: WF10x/18 mm, high eyepoint, secured by screw.

Nosepiece: Quadruple ball bearings revolving nosepiece, reversed.

Objectives:

- N-PLAN objective 4x/0.10
- N-PLAN objective 10x/0.25
- N-PLAN objective 40x/0.65
- N-PLAN objective 60x/0.85

All with anti-fungus treatment.

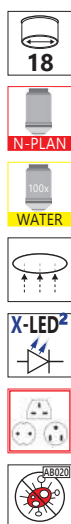
Specimen stage: Mechanical stage, 125x115 mm, 70x30 mm X-Y movement range. Vernier scale on the two axes, accuracy: 0.1 mm.

Focusing: Coaxial coarse and fine focusing mechanism with limit stop to prevent the contact between objective and specimen. Adjustable tension of coarse focusing knob.

Condenser: Abbe N.A. 1.25, pre-centered, focusable, with iris diaphragm.

Illumination: X-LED² with white 3 W LED and brightness control. Color temperature: 6,300 K. Multi-plug 100-240Vac/6Vdc external power supply.

B-192PL



Binocular microscope ideal for teachers and secondary schools, with four N-PLAN objectives (1000x), FN 18 high eyepoint, finite optical system, coaxial focusing, mechanical stage, Abbe condenser and powerful, uniform, white color temperature 3 W **X-LED²** illumination. Slim and easy to carry, yet sturdy and resistant, it is equipped with all the main controls to start learning how to use an advanced microscope and with long lasting LED illumination to provide over 20 years of use

Head: Binocular, 30° inclined; 360° rotating.

Dioptic adjustment: Left eyepiece.

Eyepieces: WF10x/18 mm, high eyepoint, secured by screw.

Nosepiece: Quadruple ball bearings revolving nosepiece, reversed.

Objectives:

- N-PLAN objective 4x/0.10
- N-PLAN objective 10x/0.25
- N-PLAN objective 40x/0.65
- N-PLAN objective 100x/1.25 (Oil/Water)

All with anti-fungus treatment.

Specimen stage: Mechanical stage, 125x115 mm, 70x30 mm X-Y movement range. Vernier scale on the two axes, accuracy: 0.1 mm.

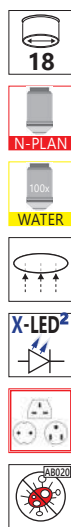
Focusing: Coaxial coarse and fine focusing mechanism with limit stop to prevent the contact between objective and specimen. Adjustable tension of coarse focusing knob.

Condenser: Abbe N.A. 1.25, pre-centered, focusable, with iris diaphragm.

Illumination: X-LED² with white 3 W LED and brightness control. Color temperature: 6,300 K. Multi-plug 100-240Vac/6Vdc external power supply.

B-190 Series - Range

B-193PL



Trinocular microscope for camera connection ideal for teachers and secondary schools, with four N-PLAN objectives (1000x), FN 18 high eyepoint, finite optical system, coaxial focusing, mechanical stage, Abbe condenser and powerful, uniform, white color temperature 3 W **X-LED²** illumination. Slim and easy to carry, yet sturdy and resistant, it is equipped with all the main controls to start learning how to use an advanced microscope and with long lasting LED illumination to provide over 20 years of use

Head: Trinocular (split ratio: 50/50), 30° inclined; 360° rotating.

Dioptric adjustment: Left eyepiece.

Eyepieces: WF10x/18 mm, high eyepoint, secured by screw.

Nosepiece: Quadruple ball bearings revolving nosepiece, reversed.

Objectives:

- N-PLAN objective 4x/0.10
 - N-PLAN objective 10x/0.25
 - N-PLAN objective 40x/0.65
 - N-PLAN objective 100x/1.25 (Oil/Water)
- All with anti-fungus treatment.

Specimen stage: Mechanical stage, 125x115 mm, 70x30 mm X-Y movement range. Vernier scale on the two axes, accuracy: 0.1 mm.

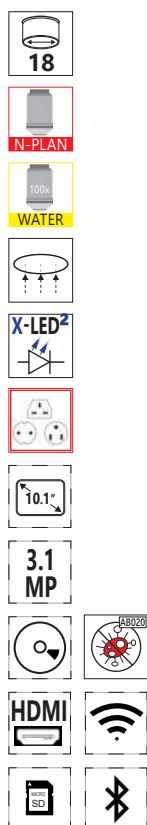
Focusing: Coaxial coarse and fine focusing mechanism with limit stop to prevent the contact between objective and specimen. Adjustable tension of coarse focusing knob.

Condenser: Abbe N.A. 1.25, pre-centered, focusable, with iris diaphragm.

Illumination: X-LED² with white 3 W LED and brightness control.

Color temperature: 6,300 K. Multi-plug 100-240Vac/6Vdc external power supply.

B-190TBPL



Digital binocular microscope ideal for teachers and secondary schools, with four N-PLAN objectives (1000x), FN 18 high eyepoint, finite optical system, coaxial focusing, mechanical stage, Abbe condenser and powerful, uniform, white color temperature 3 W **X-LED²** illumination. The 3.1 MP CMOS camera ensures excellent colour reproduction and is connected to Digital Imaging Unit with vivid color graphic display for unparalleled comfort and performance. The Digital Imaging Unit represents a 2-in-1 solution as it can be disconnected and used as a real PC, being Windows-based, with powerful Intel processor and large touch screen of 10.1" for fast, responsive and smooth control

Head: Binocular with integrated 3.1 MP camera, 30° inclined; 360° rotating. Digital Imaging Unit detachable included, rotating and tilting.

Dioptric adjustment: Left eyepiece.

Eyepieces: WF10x/18 mm, high eyepoint, secured by screw.

Nosepiece: Quadruple ball bearings revolving nosepiece, reversed.

Objectives:

- N-PLAN objective 4x/0.10
- N-PLAN objective 10x/0.25
- N-PLAN objective 40x/0.65
- N-PLAN objective 100x/1.25 (Oil/Water). All with anti-fungus treatment.

Specimen stage: Mechanical stage, 125x115 mm, 70x30 mm X-Y movement range. Vernier scale on the two axes, accuracy: 0.1 mm.

Focusing: Coaxial coarse and fine focusing mechanism with limit stop to prevent the contact between objective and specimen. Adjustable tension of coarse focusing knob.

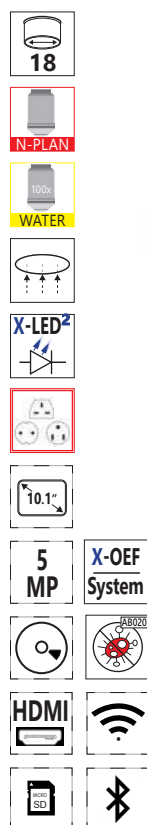
Condenser: Abbe N.A. 1.25, pre-centered, focusable, with iris diaphragm.

Illumination: X-LED² with white 3 W LED and brightness control. Color temperature: 6,300 K. Multi-plug 100-240Vac/6Vdc external power supply

B-190 Series - Range

B-190TBPL+

X-OEF



B-190TBPL+ offers the same features than B-190TBPL but with an upgraded 5Mp camera and a fully electronically controlled triple motorized focus adjustment: Macro, Semi-Micro and Micro. The new **X-OEF** system (Optika EasyFocus system) replaces the classic mechanical focusing system with an innovative solution that allows more functions. EasyFocus allows the selection of three different resolutions (shift for each step): Macro (250 μ m); Semi-Micro (8 μ m); Micro (1 μ m). The new **X-OEF** system includes a stage retraction function that facilitates and speeds up immersion oil laying and slide changing operations. Each focus resolution (Macro, Semi-Micro and Micro) is clearly displayed to the user by three dedicated blue LEDs.

Head: Binocular with integrated 5 MP camera, 30° inclined; 360° rotating. Digital Imaging Unit detachable included, rotating and tilting.

Dioptric adjustment: Left eyepiece.

Eyepieces: WF10x/18 mm, high eyepoint, secured by screw.

Nosepiece: Quadruple ball bearings revolving nosepiece, reversed.

Objectives:

- N-PLAN objective 4x/0.10
- N-PLAN objective 10x/0.25
- N-PLAN objective 40x/0.65
- N-PLAN objective 100x/1.25 (Oil/Water). All with anti-fungus treatment.

Specimen stage: Mechanical stage, 125x115 mm, 70x30 mm X-Y movement range. Vernier scale on the two axes, accuracy: 0.1 mm.

Focusing: X-OEF system with three different resolutions (Macro; Semi-Micro; Micro) and stage retraction function.

Condenser: Abbe N.A. 1.25, pre-centered, focusable, with iris diaphragm.

Illumination: X-LED² with white 3 W LED and brightness control. Color temperature: 6,300 K. Multi-plug 100-240Vac/6Vdc external power supply.

DIGITAL FOCUSING CONTROL

B-190TBPL+ features a revolutionary focusing system based on unique digital control unit. There is a single adjustment knob located on the left side of the instrument.

The knob controls the focus, which has three different resolutions:

- Macro, 250 μ m per step (7500 μ m each knob revolution)
- Semi-Micro, 8 μ m per step (240 μ m each knob revolution)
- Micro, 1 μ m per step (30 μ m each knob revolution)

The selection of the three resolutions is done simply by pressing the knob itself. Repeated operations cyclically switch the type of focus in following order: Macro $\rightarrow$ Semi-Micro $\rightarrow$ Micro, then back to Macro and so on.

On the basis of chosen resolution, three specific LEDs located on the instrument's front side illuminate:



STAGE RETRACTION SYSTEM - ONE TOUCH MEMORY FUNCTIONS

This revolutionary system stores the last focus point to facilitate and speed up routine operations that normally cost the operator time and effort:

1. Easy immersion oil laying operation

The last focusing point (height of stage) is automatically stored by the digital processor unit. This feature is really useful in case of oil immersion objectives use.

The procedure is very simple and it permits to switch from 40x to 100 objective with an ease never achieved before:

- focus the 40x objective. Its focusing point is automatically stored by the system;
- push the focusing knob for 2 seconds; the stage reaches its lower position, allowing you to easily put a drop of oil on the sample;
- put a drop of oil on the sample and switch from 40x to 100x objective;
- push once again the dedicated button; the stage rises reaching the stored focus position;
- adjust the micrometric focus.

2. Ergonomic slide changing operation

By following above mentioned procedure, it is possible to significantly save time when you change slides:

- focus the objective. Its focusing point is automatically stored by the system;
- push the dedicated button located on the microscope body; the stage reaches its lower position, allowing you to easily change the sample;
- change slide;
- push once again the dedicated button; the stage rises reaching the stored focus position;
- adjust the micrometric focus.



B-190TBPL & B-190TBPL+

Unique Features

- > Simultaneous camera & power connection
- > Equipped with the latest **Windows OS** & **Intel** processor
- > Easily detachable, can be used as a laptop (keyboard sold separately only for B-190TBPL)



Simple and user-friendly, ideal for students and experienced users.



TB-KBD2 - Accessory keyboard

Digital microscope with camera & Digital Imaging Unit

1

Educational

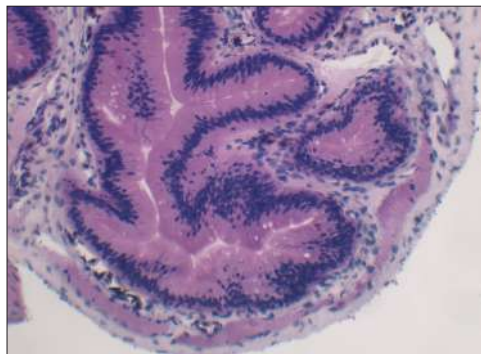
	B-190TBPL	B-190TBPL+
Camera resolution (n° of pixels: W x H)	2048x1536	2592x1944
Color / Monochrome	Color	Color
Sensor Size	1/2.5"	1/2.5"
Sensor Technology	CMOS	CMOS
Sensor Type	APTINA CMOS	APTINA CMOS
Image Format	4/3	4/3
Pixel Size (mm)	2.8x2.8	2.2x2.2
Acquisition technology	Rolling shutter	Rolling shutter
Sensitivity	0.53 V/lux-second	18.8ke/lus
Signal/Noise Ratio (DB)	40.5	40
Dynamic range (DB)	66.5	73
ADC conversion	12 Bit	12 Bit
Color Depth	8 Bit	8 Bit
Exposure time	0.1 - 1.5 sec	0.1 msec - 1 sec
Binning	1x1	1x1
IR filter	Yes	Yes
IR filter range (nm)	380-650 (IR CUT)	380-650 (IR CUT)
Camera resolution (MP)	3.1	5.1
USB standard	USB2.0	USB2.0
Frame rate full resolution (fps)	4@2048x1536	30@2592x1944
Frame rate other resolution (fps)	8@1280x1024; 30@640x480	30@1280x960; 30@640x480



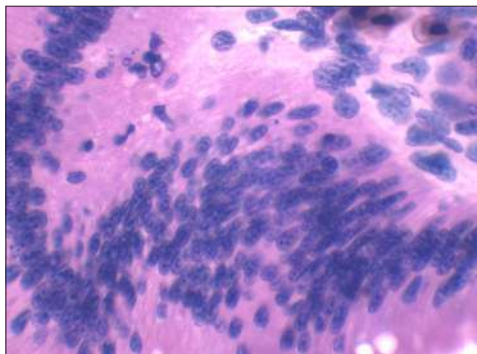
N-PLAN

OPTIKA N-PLAN objectives ensure bright, clear images with excellent flatness and compensation for chromatic aberration.

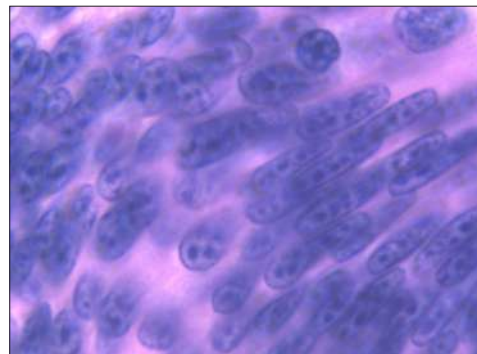
B-190 Series - Zoom comparison



Frog small intestine - B-193PL - 10x objective



Frog small intestine - B-193PL - 40x objective



Frog small intestine - B-193PL - 100x Oil objective

OPTIKA[®]

M I C R O S C O P E S
I T A L Y



STEREO MICROSCOPES

MS/SFX Series



Entry-Level Monoscopes & Stereomicroscopes For Students

Addressed For Simplicity & The Youngest Users

EDUCATIONAL STEREOMICROSCOPES DESIGNED FOR NOVICE USERS

- » Particularly recommended for primary/secondary schools & amateurs
- » 3D Greenough view for high resolved images & large field depth
- » Turnable objectives, up to 3 magnifications on 20 mm field number
- » Longlife LED illumination (providing over 20 years of use)
- » Sturdy and durable for extended lifetime; compact and intuitive

TOUCH CONTROL, A NEW FRONTIER IN ILLUMINATION ADJUSTMENT

- » Light intensity settable via a simple click
- » Cordless use, totally independent from mains/batteries connection
- » Battery status indicator informs when the battery is ready to be used
- » Freely settable illumination for incident and transmitted light
- » External power supply for enhanced safety and convenient servicing

MS/SFX Series

A great variety of mainly cordless binocular stereomicroscopes with turnable objectives, FN 20 eyepieces, 1 W LED transmitted/incident illumination and different stands to start exploring and discovering sciences and materials, including biology, entomology, rocks, plants, and many more specimens. Most of the models are equipped with premium features, such as the exclusive, comfortable touch control and the rechargeable batteries. Slim and easy to carry, all the models are equipped with long lasting LED illumination to provide over 20 years of use



Turnable objectives, up to 3 magnifications on 20 mm field number

SFX series is designed for basic operations, being provided with widefield eyepieces and objective turret magnification changer (up to 3 magnifications) for step magnification

Touch control - light intensity settable via a simple click

SFX Series represents a new frontier in illumination adjustment with an incredibly comfortable solution: the touch control, consisting in 10 pre-set intensity levels (5 for transmitted, 5 for incident)

Cordless use, totally independent from the mains/batteries connection

SFX Series works with or without the batteries in place and are provided with three NiMH rechargeable batteries for the longest autonomy in outdoor use (4-hour autonomy, at medium intensity)

MS/SFX Series

Battery status indicator informs when batteries are ready to be used

SFX Series has a smart charging indicator which indicates current charging status at all times - even when not in charge or during storage: if it is on, it means it is immediately ready to work

Longlife LED illumination (providing over 20 years of use)

Money & energy saving thanks to LED long lifetime (65.000 hours, 22 years in case of 8 hours/day) which is more than 20 times compared to a standard halogen bulb

External power supply for enhanced safety and convenient servicing

OPTIKA's safety first approach drives to the use of a low voltage, multi-plug, external power supply in order to prevent any risk of electric shock and heatflow inside the unit



ST-50Led - When Long Working Distance Is Required

ST-50Led has a special objective with long working distance that allows you to inspect bulky samples, thanks also to its overhanging arm stand and LED flexible incident light

MS-01 - Multifunctional Testing Equipment

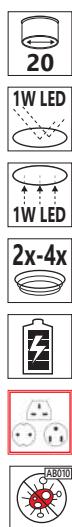
MS-01 is a portable monoscope ideal as versatile testing equipment especially for surface analysis and measurements to be used directly on the specimen with 10x objective and penlight for incident illumination

GREENOUGH



MS/SFX Series - Range

SFX-33



Cordless binocular stereomicroscope ideal for students, schools and amateurs to dissect and discover mainly biology and materials science in 3D, with turnable objective (2x-4x), FN 20 eyepieces, fixed arm with handle and 1 W LED transmitted / incident illumination with comfortable touch control and rechargeable batteries (not provided). Slim and easy to carry, it is equipped with long lasting LED illumination to provide over 20 years of use

Head: Binocular, 45° inclined.

Dioptric adjustment: Both eyepieces.

Eyepieces: WF10x/20 mm, secured by screw and with rubber cups.

Objective: Achromatic 2x-4x with anti-fungus treatment.

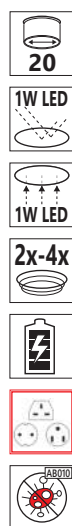
Working distance: 57 mm

Stand: Fixed with handle and focus.

Focusing: Rack and pinion focusing mechanism.

Illumination: 1 W LED incident and transmitted, with touch brightness control, rechargeable batteries (not provided). Color temperature: 6,300 K. Multi-plug 100-240Vac/5Vdc external power supply.

SFX-51



Cordless binocular stereomicroscope ideal for students, schools and amateurs to dissect and discover mainly biology and materials science in 3D, with turnable objective (2x-4x), FN 20 eyepieces, 360° rotating head, fixed arm with handle and 1 W LED transmitted / incident illumination with comfortable touch control and rechargeable batteries (not provided). Slim and easy to carry, it is equipped with long lasting LED illumination to provide over 20 years of use

Head: Binocular, 45° inclined; 360° rotating.

Dioptric adjustment: Both eyepieces.

Eyepieces: WF10x/20 mm, secured by screw and with rubber cups.

Objective: Achromatic 2x-4x with anti-fungus treatment.

Working distance: 76 mm

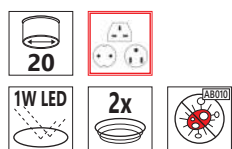
Stand: Fixed with handle and focus.

Focusing: Rack and pinion focusing mechanism.

Illumination: 1 W LED incident and transmitted, with touch brightness control, rechargeable batteries (not provided). Color temperature: 6,300 K. Multi-plug 100-240Vac/5Vdc external power supply

MS/SFX Series - Range

ST-50Led



Binocular stereomicroscope ideal for large specimens, with long working distance fixed objective (2x), FN 20 eyepieces, overhanging stand and 1 W LED swiveling incident illumination. Additional objectives available for different magnifications

Head: Binocular, 45° inclined.

Dioptric adjustment: Left eyepiece.

Eyepieces: WF10x/20 mm, secured by screw.

Objective: Achromatic 2x with anti-fungus treatment.

Working distance: 110 mm.

Stand: Overhanging with focus.

Focusing: Rack and pinion focusing mechanism.

Illumination: 1 W LED swiveling incident on flexible arm.
Color temperature: 6,300 K. Multi-plug 100-240Vac/6Vdc external power supply.

SFX-85V



Digital Zoom microscope with tilting/folding 9" monitor with camera and software integrated, LED Incident & transmitted light, precision fixed arm with handle and incredibly bright and uniform led illumination (transmitted and incident), settable through the exclusive touch control. Powered by external power supply.

Head: Monitor 9" screen tilting and folding.

Zoom Optics: 0.7X to 4.5X

Total Magnification on Monitor: 8x to 54x

Camera: 5MP, CMOS.

Working distance: 100 mm.

Stand: High-grade fixed stand with focus and handle.

Focusing: Rack and pinion focusing mechanism

Illumination: Incident: 21 LEDs, 1W in total. Transmitted: 1W LED.
Touch brightness control. Multi-plug 100-240Vac, 50/60 Hz external power supply.



SLX Series



Stereomicroscopes For Higher Education & Laboratory

Extremely Versatile Cordless Stereo & Stereozoom Microscopes

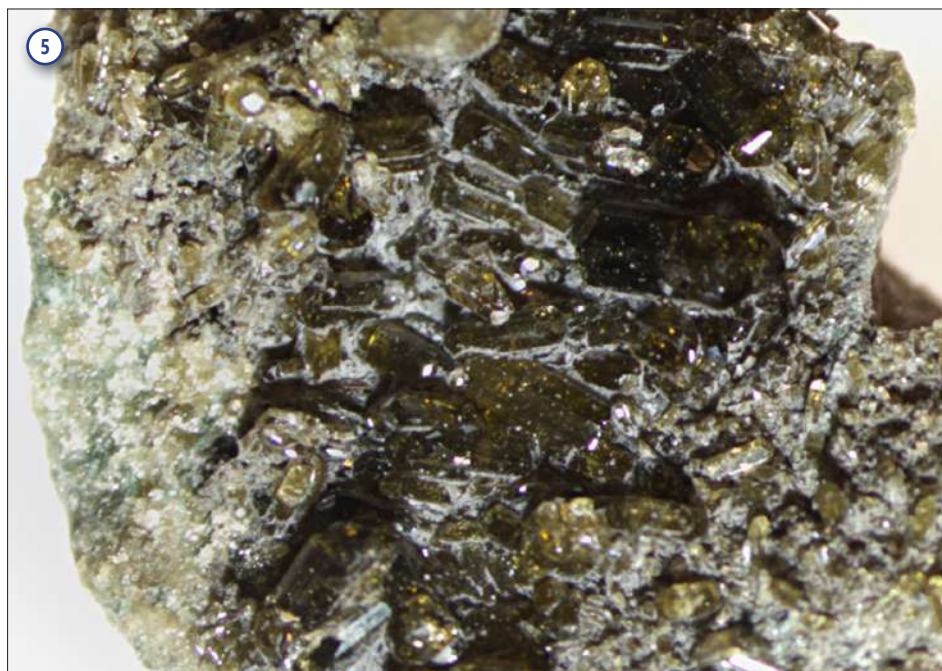
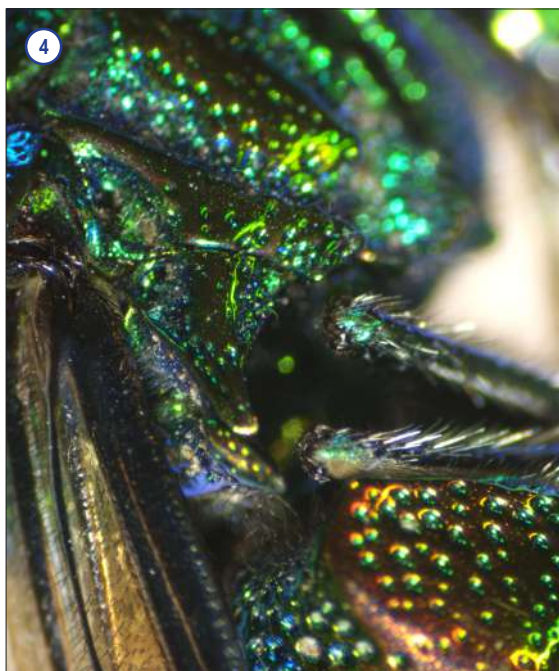
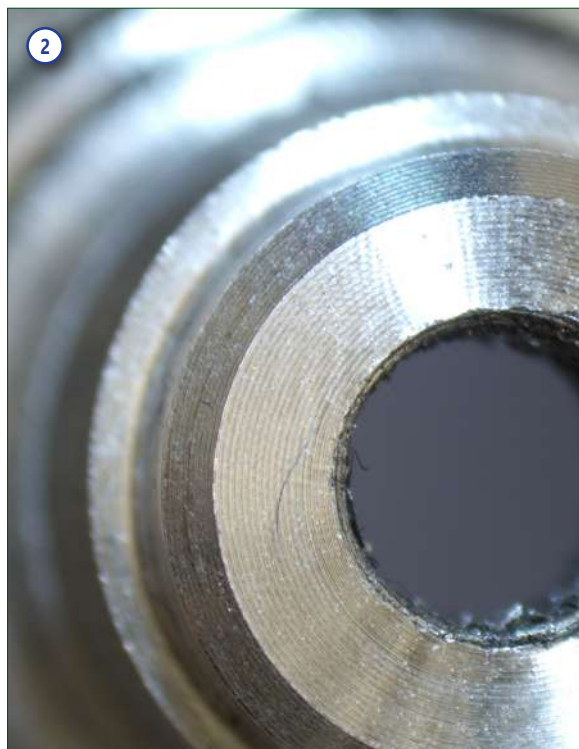
PROFESSIONAL FEATURES FOR... WELL, EVERYONE

- » Level up skills and become a professional user
- » 3D Greenough view for high resolved images & large field depth
- » 6.43:1 ratio - 7x ... 45x - or turnable objective - 2x, 4x - on 21 mm
- » Compact, practical and intuitive to use
- » Sturdy and durable for extended lifetime

THE LONGEST AUTONOMY ON THE MARKET

- » Longlife LED illumination (providing over 20 years of use)
- » Ultra-flat base with Ø 100 mm disc for diffused transmitted light
- » Cordless use, totally independent from mains/batteries connection
- » Freely settable illumination - incident, oblique and transmitted light
- » External power supply for enhanced safety and convenient servicing

SLX Series



Legend

- | | |
|---|---------------------------------------|
| 1. Aluminum - SLX-1 and 4x objective. | 4. Fly, detail - SLX-2 and 4.5x zoom. |
| 2. Component worked on lathe - SLX-2 and 3x zoom. | 5. Rock - SLX-2 - 1.5x zoom. |
| 3. Wasp - SLX-3 and 4x zoom. | |

SLX Series



Valuable configurations of cordless and modern stereo & stereozoom microscopes ideal for a variety of applications, including industrial purposes as well as dissection, biology, entomology, anatomy, chemistry and material science among the others.

Provided with dual magnification or **6.43:1 zoom ratio**, **FN 21** high eyepoint eyepieces, high-grade precise fixed arm with focus and handle with the latest technology of **EcoLED™** illumination plus rechargeable batteries. Slim and easy to carry, all the models are equipped with long lasting LED illumination to provide over 20 years of use

High eyepoint eyepieces for glasses wearers

These eyepieces are designed in such a way that the exit pupil is further away from the eye lens than standard eyepieces, being are well suited for eyeglasses wearers

The longest autonomy on the market ensured by EcoLED™

OPTIKA has re-designed illumination in microscopy, once again: a special coating process on optics combined with a new, higher ratio between low consumptions and ultra-efficiency has addressed us to top brightness levels

6.43:1 zoom ratio - zoom magnification from 7x to 45x

Purposely designed for professional routine inspections, the total magnification can be even extended to 180x with 20x eyepieces and 2x additional lens, obtaining an excellent results in this class



Ultra-flat base with Ø 100 mm disc for diffused transmitted light

A new level of ergonomics and comfort is achieved during operations, with the ultra-flat base of only 3 cm height to ensure smooth specimen movement and the Ø 100 mm for top class diffusion of the transmitted light

Stereomicroscopes For Higher Education & Laboratory



Longlife LED illumination (providing over 20 years of use)

Money & energy saving thanks to LED long lifetime (65.000 hours, 22 years in case of 8 hours/day) which is more than 20 times compared to a standard halogen bulb

Cordless use, totally independent from mains/batteries connection

All models work with or without the batteries in place and are provided with three NiMH rechargeable batteries for the longest autonomy in outdoor use (12-hour autonomy, at medium intensity)



External power supply for enhanced safety and convenient servicing

OPTIKA's safety first approach drives to the use of a low voltage, multi-plug, external power supply in order to prevent any risk of electric shock and heatflow inside the unit

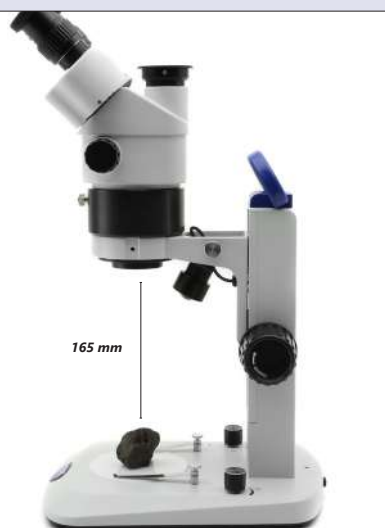
SLX Series - Get the most out of our accessories

Additional Lenses

Simply to be screwed into the threads below the objectives of SLX-2 and SLX-3 to either increase or decrease total magnification, or to increase the working distance when users need to work with hands under the microscope



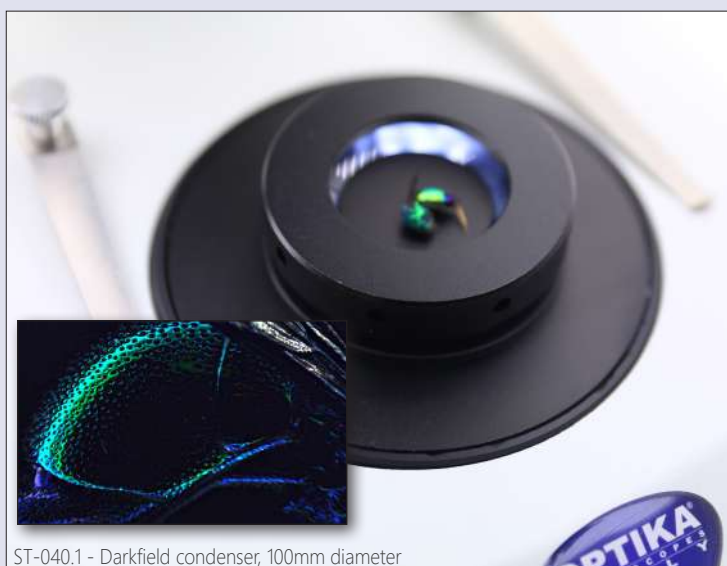
ST-091 - Additional lens 0.75x



ST-085.1 - Additional lens 0.5x (w.d. 165mm) with SZ-EXT

ST-040.1 - Darkfield condenser

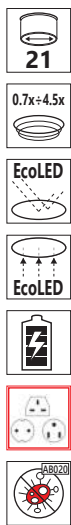
This is a darkfield condenser for stereo microscopes with bottom light and 100 mm round working plate to provide darkfield microscopy features, fitting all OPTIKA stereomicroscopes with 100 mm mounting size and transmitted light



ST-040.1 - Darkfield condenser, 100mm diameter

SLX Series - Range

SLX-3



Cordless trinocular stereozoom microscope ideal for industrial purposes and students/amateurs to dissect and discover mainly biology and materials science in 3D, with 0.7x...4.5x zoom, FN 21 high eyepoint eyepieces, precision fixed arm with handle and the latest technology of EcoLED™ illumination plus rechargeable batteries (not provided). Slim and easy to carry, it is equipped with long lasting LED illumination to provide over 20 years of use

Head: Trinocular (split ratio: 50/50), 45° inclined; 360° rotating.

Dioptric adjustment: Both eyepieces.

Eyepieces: WF10x/21 mm, high eyepoint, secured by screw and with rubber cups.

Objective: Parfocal achromatic zoom 0.7x...4.5x (6.43:1 ratio) with anti-fungus treatment.

Working distance: 100 mm.

Stand: High-grade, precision fixed with handle and focus.

Focusing: Rack and pinion focusing mechanism.

Illumination: EcoLED™ swiveling incident and transmitted, with brightness control, rechargeable batteries (not provided). Color temperature: 6,300 K. Multi-plug 100-240Vac/5Vdc external power supply.

SLX Series - Comparison Chart

Model	Head	Eyepieces	Objective	Working Distance	Stand	Illumination
SLX-1	Binocular 45° inclined 360° rotating	WF 10x/21	2x – 4x selectable	100 mm	High-grade, precision fixed with handle and focus	EcoLED™ swiveling incident and transmitted with brightness control, rechargeable batteries (not provided)
SLX-2	Binocular 45° inclined 360° rotating	WF 10x/21	0.7x...4.5x zoom	100 mm	High-grade, precision fixed with handle and focus	EcoLED™ swiveling incident and transmitted with brightness control, rechargeable batteries (not provided)
SLX-3	Trinocular (50/50) 45° inclined 360° rotating	WF 10x/21	0.7x...4.5x zoom	100 mm	High-grade, precision fixed with handle and focus	EcoLED™ swiveling incident and transmitted with brightness control, rechargeable batteries (not provided)

Optical performance SLX-1

Eyepiece	10x (ST-081)		15x (ST-082)		20x (ST-083)		10x (ST-084)	
Field number (mm)	21		15		10		21	
Additional lens	Total magnification	Field of View (mm)	Total magnification	Field of View (mm)	Total magnification	Field of View (mm)	Total magnification	Field of View (mm)
1x	20x - 40x	10.50 - 5.25	30x - 60x	7.50 - 3.75	40x - 80x	5.00 - 2.50	20x - 40x	10.50 - 5.25

Optical performance SLX-2 - SLX-3

Eyepiece	10x (ST-081)		15x (ST-082)		20x (ST-083)		10x (ST-084)	
Field number (mm)	21		15		10		21	
Additional lens	Total magnification	Field of View (mm)	Total magnification	Field of View (mm)	Total magnification	Field of View (mm)	Total magnification	Field of View (mm)
0.5x	3.5x - 22.5x	60.00 - 9.33	5.25x - 33.75x	42.86 - 6.67	7x - 45x	28.57 - 4.44	3.5x - 22.5x	60.00 - 9.33
0.75x	5.25x - 33.75x	40.00 - 6.22	7.875x - 50.625x	28.57 - 4.44	10.5x - 67.5x	19.05 - 2.96	5.25x - 33.75x	40.00 - 6.22
1x	7x - 45x	30.00 - 4.67	10.5x - 67.5x	21.43 - 3.33	14x - 90x	14.29 - 2.22	7x - 45x	30.00 - 4.67
1.5x	10.5x - 67.5x	20.00 - 3.11	15.75x - 101.25x	14.29 - 2.22	21x - 135x	9.52 - 1.48	10.5x - 67.5x	20.00 - 3.11