

## 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

## 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-LED<sup>1</sup> 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-LED<sup>1</sup>**



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

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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-LED<sup>1</sup> - 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!

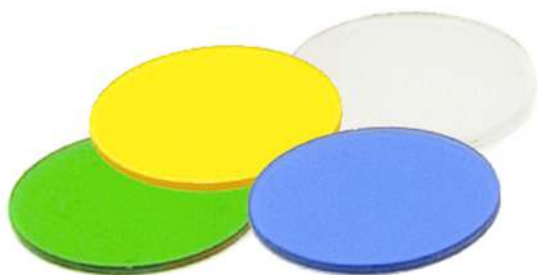


### N-PLAN objectives combined with exclusive Li-ion battery (R-PL line)

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

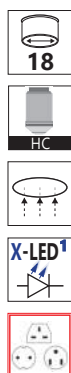
Decrease the colour temperature of light (toward the red)

#### M-988 - Frosted glass filter

Increase the uniformity of illumination, even further

# B-150 Series - Standard Models

## B-151



Monocular microscope ideal for students and primary schools, with three achromatic lenses (400x), FN 18 high eyepoint eyepiece, finite optical system, coaxial focusing, fixed stage and powerful, uniform, white color temperature settable 1 W **X-LED<sup>1</sup>** illumination. Slim and easy to carry, the LED illumination will provide over 20 years of use

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

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

**Nosepiece:** Quadruple ball bearings revolving nosepiece.

**Objectives:**

- Achromatic HC type 4x/0.10
  - Achromatic HC type 10x/0.25
  - Achromatic HC type 40x/0.65.
- All with anti-fungus treatment.

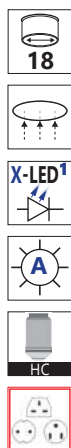
**Specimen stage:** Fixed stage, 130x120 mm. With sample clips.

**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. 0.65, pre-centered, fixed with iris diaphragm.

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

## B-151ALC



Monocular microscope ideal for students and primary schools, with three achromatic lenses (400x), FN 18 high eyepoint eyepiece, finite optical system, coaxial focusing, fixed stage and powerful, uniform, white color temperature settable 1 W **X-LED<sup>1</sup>** illumination. Slim and easy to carry, the LED illumination will provide over 20 years of use of use. The exclusive ALC will automatically adjust the brightness according to your preferences

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

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

**Nosepiece:** Quadruple ball bearings revolving nosepiece.

**Objectives:**

- Achromatic HC type 4x/0.10
  - Achromatic HC type 10x/0.25
  - Achromatic HC type 40x/0.65.
- All with anti-fungus treatment.

**Specimen stage:** Fixed stage, 130x120 mm. 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. 0.65, pre-centered, fixed with iris diaphragm.

**Illumination:** X-LED<sup>1</sup> 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

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Educational

## B-151R-PL



Cordless monocular microscope ideal for students and primary schools, with three PLAN achromatic lenses (400x), FN 18 high eyepoint eyepiece, finite optical system, coaxial focusing, fixed stage and powerful, uniform, white color temperature 1 W **X-LED** illumination. Slim and easy to carry, the LED illumination will provide over 20 years of use of use. The exclusive Li-Ion battery ensures unparalleled duration and fast recharge

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

**Eyepiece:** WF10x/18 mm, secured by screw.

**Nosepiece:** Quadruple ball bearings revolving nosepiece.

**Objectives:**

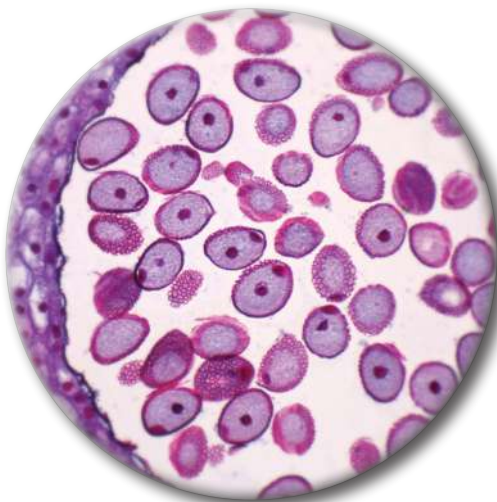
- N-PLAN 4x/0.10, with anti-fungus treatment
- N-PLAN 10x/0.25, with anti-fungus treatment
- N-PLAN 40x/0.65, with anti-fungus treatment

**Specimen stage:** Fixed stage, 130x120 mm. With sample clips.

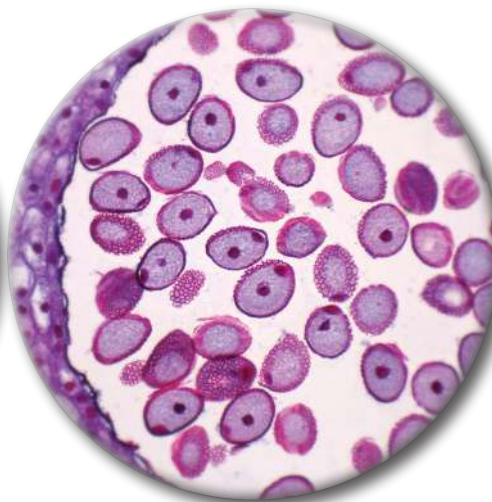
**Focusing:** Coaxial coarse and fine focusing mechanism with limit stop to prevent the contact between objective and specimen. Adjustable tension of coarse focusing knob.

**Condenser:** N.A. 0.65, pre-centered, fixed with iris diaphragm.

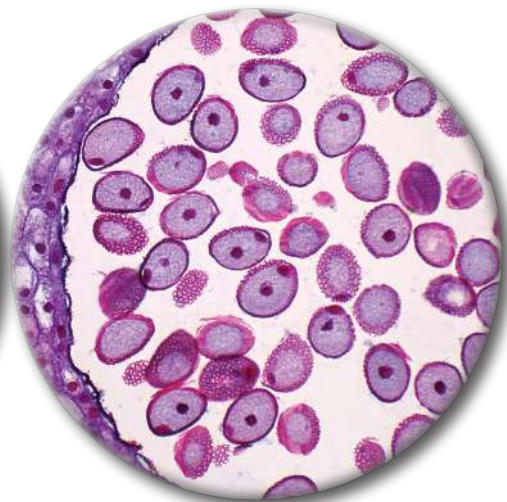
**Illumination:** X-LED<sup>1</sup> with white 1 W LED and light intensity control. Color temperature: 6,300 K. Li-Ion battery for long lasting operation. Multi-plug 100-240Vac/5Vdc external power supply.



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 - Standard Models

## B-153



Monocular microscope ideal for students and primary schools, with four achromatic lenses (600x), FN 18 high eyepoint eyepiece, finite optical system, coaxial focusing, mechanical stage, Abbe condenser and powerful, uniform, white color temperature 1 W **X-LED<sup>1</sup>** 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:** Monocular, 30° inclined; 360° rotating.

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

**Nosepiece:** Quadruple ball bearings revolving nosepiece.

**Objectives:**

- Achromatic HC type 4x/0.10
  - Achromatic HC type 10x/0.25
  - Achromatic HC type 40x/0.65
  - Achromatic HC type 60x/0.85.
- 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-LED<sup>1</sup> with white 1 W LED and brightness control. Color temperature: 6,300 K. Multi-plug 100-240Vac/5Vdc external power supply.

## B-153ALC



Monocular microscope ideal for students and primary schools, with four achromatic lenses (600x), FN 18 high eyepoint eyepiece, finite optical system, coaxial focusing, mechanical stage, Abbe condenser and powerful, uniform, white color temperature 1 W **X-LED<sup>1</sup>** 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:** Monocular, 30° inclined; 360° rotating (when ALC cable is unplugged).

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

**Nosepiece:** Quadruple ball bearings revolving nosepiece.

**Objectives:**

- Achromatic HC type 4x/0.10
  - Achromatic HC type 10x/0.25
  - Achromatic HC type 40x/0.65
  - Achromatic HC type 60x/0.85.
- 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-LED<sup>1</sup> 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-152R-PL / B-153R-PL



Cordless monocular microscope ideal for students and primary schools, with three or four PLAN achromatic lenses (400x on B-152R-PL or 600x on B-153R-PL), FN 18 high eyepoint eyepiece, finite optical system, coaxial focusing, mechanical stage, Abbe condenser and powerful, uniform, white color temperature 1 W **X-LED<sup>1</sup>** 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, 30° inclined; 360° rotating.

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

**Nosepiece:** Quadruple ball bearings revolving nosepiece.

**Objectives:**

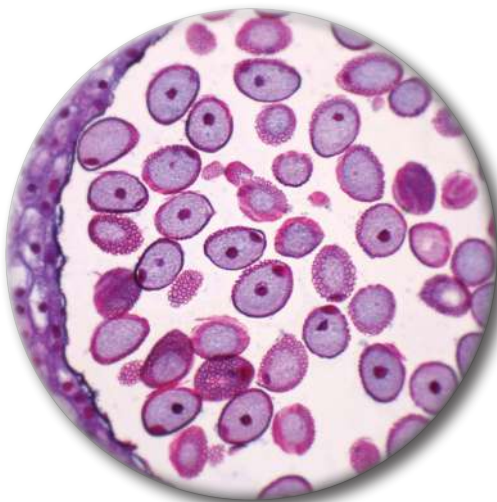
- N-PLAN plan achromatic 4x/0.10
  - N-PLAN plan achromatic 10x/0.25
  - N-PLAN plan achromatic 40x/0.65
  - N-PLAN plan achromatic 60x/0.85. (only for B-153R-PL)
- All with anti-fungus treatment.

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

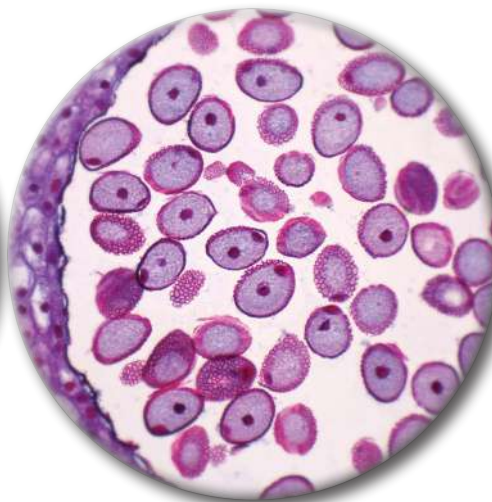
**Focusing:** Coaxial coarse and fine focusing mechanism with limit stop to prevent the contact between objective and specimen. Adjustable tension of coarse focusing knob.

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

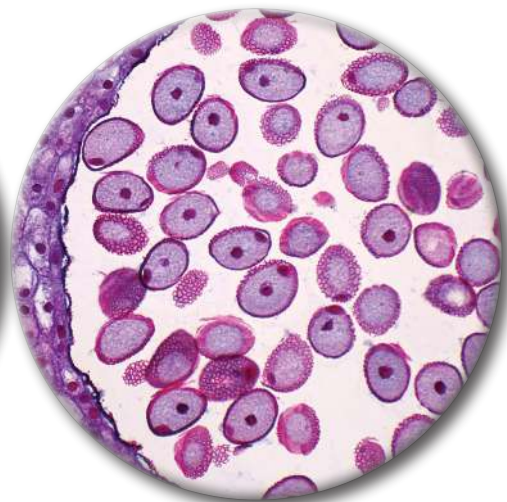
**Illumination:** X-LED<sup>1</sup> with white 1 W LED and brightness control. Color temperature: 6,300 K. Li-Ion battery for long lasting operation. Multi-plug 100-240Vac/5Vdc external power supply.



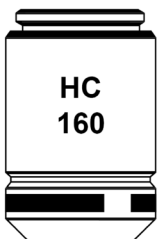
Lily Anther, Mature Pollen Grains, c.s  
Conventional Achromatic Objective



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.

# 1 B-150 Series - Standard Models

## B-155



Monocular microscope ideal for students and primary schools, with four achromatic lenses (1000x), FN 18 high eyepoint eyepiece, finite optical system, coaxial focusing, mechanical stage, Abbe condenser and powerful, uniform, white color temperature 1 W **X-LED<sup>1</sup>** 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:** Monocular, 30° inclined; 360° rotating.

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

**Nosepiece:** Quadruple ball bearings revolving nosepiece.

**Objectives:**

- Achromatic HC type 4x/0.10
- Achromatic HC type 10x/0.25
- Achromatic HC type 40x/0.65
- Achromatic HC type 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-LED<sup>1</sup> with white 1 W LED and brightness control. Color temperature: 6,300 K. Multi-plug 100-240Vac/5Vdc external power supply.

## B-155ALC



Monocular microscope ideal for students and primary schools, with four achromatic lenses (1000x), FN 18 high eyepoint eyepiece, finite optical system, coaxial focusing, mechanical stage, Abbe condenser and powerful, uniform, white color temperature 1 W **X-LED<sup>1</sup>** 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:** Monocular, 30° inclined; 360° rotating (when ALC cable is unplugged).

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

**Nosepiece:** Quadruple ball bearings revolving nosepiece.

**Objectives:**

- Achromatic HC type 4x/0.10
- Achromatic HC type 10x/0.25
- Achromatic HC type 40x/0.65
- Achromatic HC type 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.

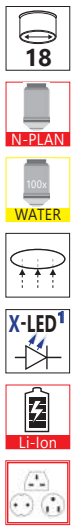
**Focusing:** Coaxial coarse and fine focusing mechanism with limit stop to prevent the contact between objective and specimen. Adjustable tension of coarse focusing knob.

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

**Illumination:** X-LED<sup>1</sup> 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-155R-PL



Cordless monocular microscope ideal for students and primary schools, with four PLAN achromatic lenses (1000x), FN 18 high eyepoint eyepiece, finite optical system, coaxial focusing, mechanical stage, Abbe condenser and powerful, uniform, white color temperature 1 W **X-LED<sup>1</sup>** 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, 30° inclined; 360° rotating.

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

**Nosepiece:** Quadruple ball bearings revolving nosepiece.

**Objectives:**

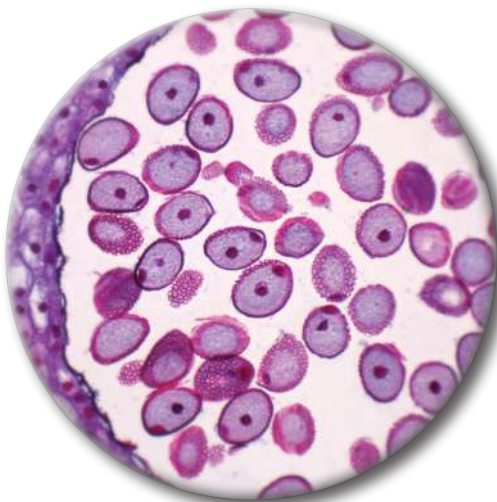
- N-PLAN plan achromatic 4x/0.10
  - N-PLAN plan achromatic 10x/0.25
  - N-PLAN plan achromatic 40x/0.65
  - N-PLAN plan achromatic 100x/1.25 (oil/water).
- All with anti-fungus treatment.

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

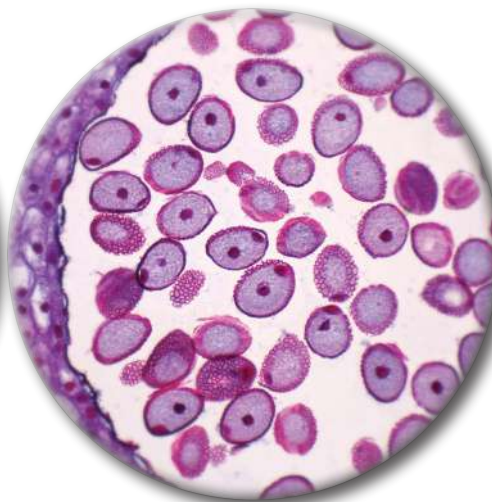
**Focusing:** Coaxial coarse and fine focusing mechanism with limit stop to prevent the contact between objective and specimen. Adjustable tension of coarse focusing knob.

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

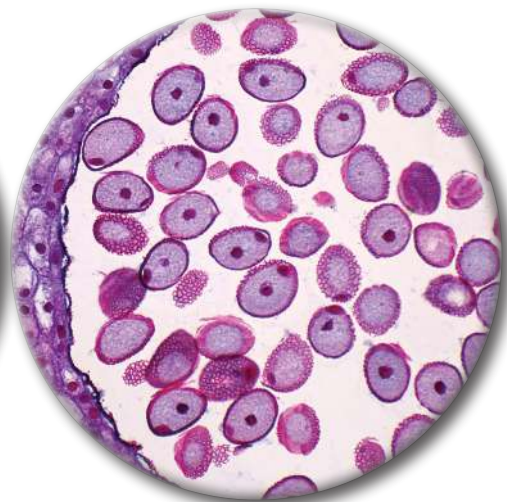
**Illumination:** X-LED<sup>1</sup> with white 1 W LED and brightness control. Color temperature: 6,300 K. Li-Ion battery for long lasting operation. Multi-plug 100-240Vac/5Vdc external power supply.



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 - Standard Models

Educational

## B-157



Binocular microscope ideal for students and primary schools, with four achromatic lenses (600x), FN 18 high eyepoint eyepieces, finite optical system, coaxial focusing, mechanical stage, Abbe condenser and powerful, uniform, white color temperature 1 W **X-LED<sup>1</sup>** 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.

**Dioptric 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
  - Achromatic HC type 10x/0.25
  - Achromatic HC type 40x/0.65
  - Achromatic HC type 60x/0.85.
- 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-LED<sup>1</sup> with white 1 W LED and brightness control. Color temperature: 6,300 K. Multi-plug 100-240Vac/5Vdc external power supply.

## B-157ALC



Binocular microscope ideal for students and primary schools, with four achromatic lenses (600x), FN 18 high eyepoint eyepieces, finite optical system, coaxial focusing, mechanical stage, Abbe condenser and powerful, uniform, white color temperature 1 W X-LED<sup>1</sup> 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.

**Dioptric 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
  - Achromatic HC type 10x/0.25
  - Achromatic HC type 40x/0.65
  - Achromatic HC type 60x/0.85.
- 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

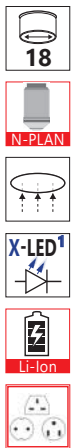
**Focusing:** Coaxial coarse and fine focusing mechanism with limit stop to prevent the contact between objective and specimen. Adjustable tension of coarse focusing knob.

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

**Illumination:** X-LED<sup>1</sup> 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-157R-PL



Cordless binocular microscope ideal for students and primary schools, with four PLAN achromatic lenses (600x), FN 18 high eyepoint eyepieces, finite optical system, coaxial focusing, mechanical stage, Abbe condenser and powerful, uniform, white color temperature 1 W **X-LED<sup>1</sup>** 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, 30° inclined; 360° rotating.

**Dioptric adjustment:** Left eyepiece.

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

**Nosepiece:** Quadruple ball bearings revolving nosepiece.

**Objectives:**

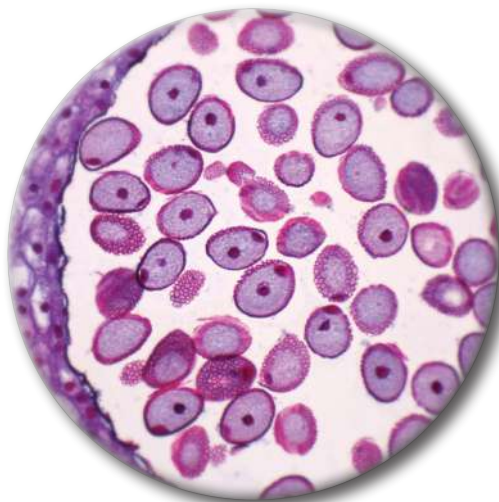
- N-PLAN plan achromatic 4x/0.10
  - N-PLAN plan achromatic 10x/0.25
  - N-PLAN plan achromatic 40x/0.65
  - N-PLAN plan achromatic 60x/0.85.
- All with anti-fungus treatment.

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

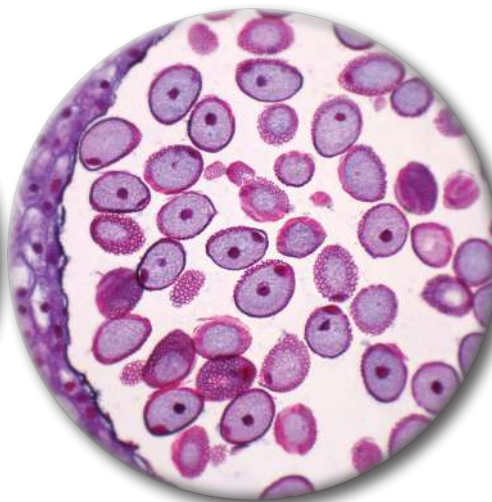
**Focusing:** Coaxial coarse and fine focusing mechanism with limit stop to prevent the contact between objective and specimen. Adjustable tension of coarse focusing knob.

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

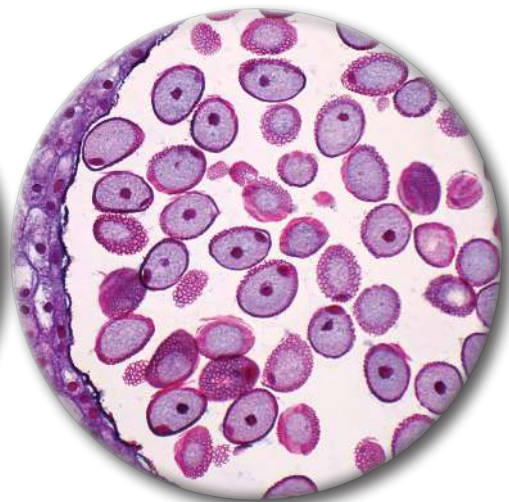
**Illumination:** X-LED<sup>1</sup> with white 1 W LED and brightness control. Color temperature: 6,300 K. Li-Ion battery for long lasting operation. Multi-plug 100-240Vac/5Vdc external power supply.



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.

# 1 B-150 Series - Standard Models

Educational

## 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-LED<sup>1</sup>** 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.

**Dioptric 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
  - Achromatic HC type 10x/0.25
  - Achromatic HC type 40x/0.65
  - Achromatic HC type 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-LED<sup>1</sup> 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-LED<sup>1</sup> 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).

**Dioptric 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
- Achromatic HC type 10x/0.25
- Achromatic HC type 40x/0.65
- Achromatic HC type 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.

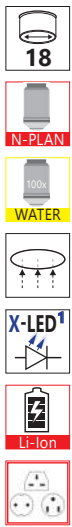
**Condenser:** Abbe N.A. 1.25, pre-centered, focusable, with iris diaphragm.

**Illumination:** X-LED<sup>1</sup> 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 eyepiece eyepieces, finite optical system, coaxial focusing, mechanical stage, Abbe condenser and powerful, uniform, white color temperature 1 W **X-LED<sup>1</sup>** 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, 30° inclined; 360° rotating.

**Dioptric adjustment:** Left eyepiece.

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

**Nosepiece:** Quadruple ball bearings revolving nosepiece.

**Objectives:**

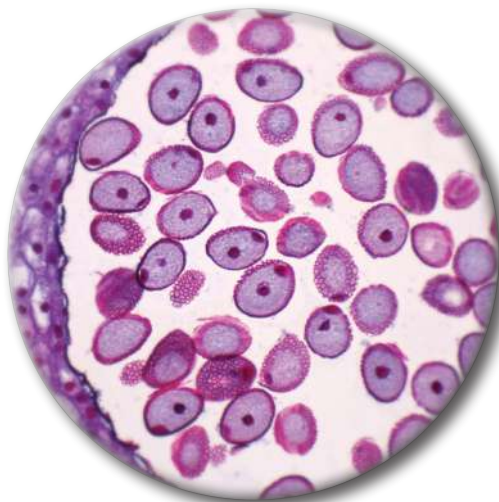
- N-PLAN plan achromatic 4x/0.10
  - N-PLAN plan achromatic 10x/0.25
  - N-PLAN plan achromatic 40x/0.65
  - N-PLAN plan achromatic 100x/1.25 (oil/water).
- All with anti-fungus treatment.

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

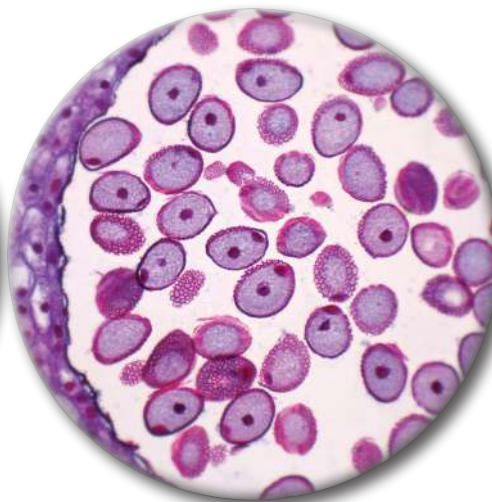
**Focusing:** Coaxial coarse and fine focusing mechanism with limit stop to prevent the contact between objective and specimen. Adjustable tension of coarse focusing knob.

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

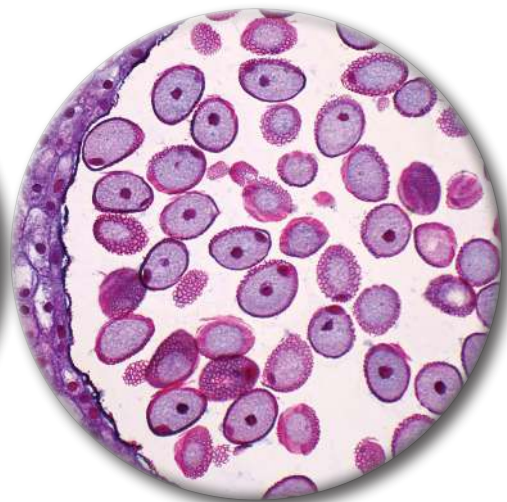
**Illumination:** X-LED<sup>1</sup> with white 1 W LED and brightness control. Color temperature: 6,300 K. Li-Ion battery for long lasting operation. Multi-plug 100-240Vac/5Vdc external power supply.



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-LED**<sup>1</sup> 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:** 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-LED<sup>1</sup> 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-LED**<sup>1</sup> 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.

**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. 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-LED<sup>1</sup> 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-LED<sup>1</sup>** 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-LED<sup>1</sup> 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-LED<sup>1</sup>** 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-LED<sup>1</sup> 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
Resolution	1280x1024 pixels (1.3 MP)	2048x1536 pixels (3.14 MP)
Sensor	1/3.2" CMOS	1/2.5" CMOS
Pixel size	2.8x2.8 μm	2.2x2.2 μm
Resolution & Frame Rate	1280x1024 - 15 fps	2048x1536 - 4 fps
	640x480 - 30 fps	1280x1024 - 8 fps
		640x480 - 30 fps
Sensitivity	1.0 V/Lux-sec	0.53 V/Lux-sec
White Balance	Auto / Manual	Auto / Manual
S/N Ratio	≥ 40 dB	≥ 40 dB
Dynamic Range	≥ 66.5 dB	≥ 66.5 dB
Digital Port	USB 2.0	USB 2.0
Imaging Software	OPTIKA Vision Lite	OPTIKA Vision Lite
System Requirements	Operating system: Windows XP, Vista, Win7, Win8, Win10, 32-64 bit	

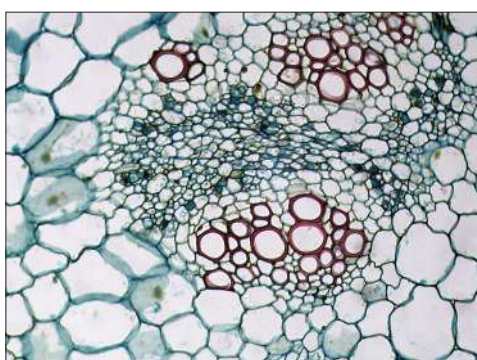
## B-150 Series - Optical performance

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

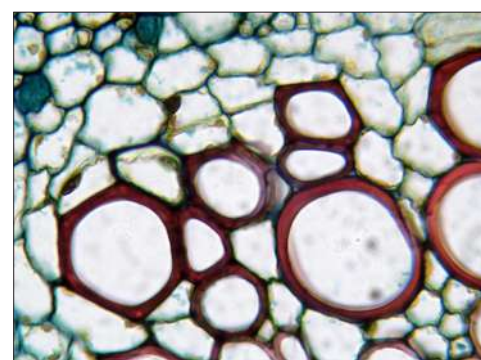
## B-150 Series - Zoom comparison



Monocot and dicot - B-157 - 4x objective



Monocot and dicot - B-157 - 10x objective



Monocot and dicot - B-157 - 40x objective

# B-150 Series - Comparison charts

## B-150 - Standard Models, with HC Objectives

Model	Head	Eyepiece(s)	Nosepiece	Objectives	Stage	Focusing	Condenser	Illumination
<b>B-151</b>	Monocular, 30° inclined, 360° rotating	WF 10x/18	Quadruple	HC (high contrast) 4x, 10x, 40x	Fixed, 130x120 mm, with sample clips	Coaxial coarse and fine, limit stop	N.A. 0.65, iris diaphragm, fixed	1 W X-LED <sup>1</sup> , manual brightness control
<b>B-153</b>	Monocular, 30° inclined, 360° rotating	WF 10x/18	Quadruple	HC (high contrast) 4x, 10x, 40x, 60x	Double layer, 125x116 mm, moving range 70x30 mm	Coaxial coarse and fine, limit stop	Abbe N.A. 1.25, iris diaphragm, focusable	1 W X-LED <sup>1</sup> , manual brightness control
<b>B-155</b>	Monocular, 30° inclined, 360° rotating	WF 10x/18	Quadruple	HC (high contrast) 4x, 10x, 40x, 100x	Double layer, 125x116 mm, moving range 70x30 mm	Coaxial coarse and fine, limit stop	Abbe N.A. 1.25, iris diaphragm, focusable	1 W X-LED <sup>1</sup> , manual brightness control
<b>B-157</b>	Binocular, 30° inclined, 360° rotating	WF 10x/18	Quadruple	HC (high contrast) 4x, 10x, 40x, 60x	Double layer, 125x116 mm, moving range 70x30 mm	Coaxial coarse and fine, limit stop	Abbe N.A. 1.25, iris diaphragm, focusable	1 W X-LED <sup>1</sup> , manual brightness control
<b>B-159</b>	Binocular, 30° inclined, 360° rotating	WF 10x/18	Quadruple	HC (high contrast) 4x, 10x, 40x, 100x	Double layer, 125x116 mm, moving range 70x30 mm	Coaxial coarse and fine, limit stop	Abbe N.A. 1.25, iris diaphragm, focusable	1 W X-LED <sup>1</sup> , manual brightness control

## B-150 - ALC Models, with Automatic Light Control and HC Objectives

Model	Head	Eyepiece(s)	Nosepiece	Objectives	Stage	Focusing	Condenser	Illumination
<b>B-151ALC</b>	Monocular, 30° inclined	WF 10x/18	Quadruple	HC (high contrast) 4x, 10x, 40x	Fixed, 130x120 mm, with sample clips	Coaxial coarse and fine, limit stop	N.A. 0.65 fixed, with diaphragm	1 W X-LED <sup>1</sup> , manual and <b>automatic brightness control</b>
<b>B-153ALC</b>	Monocular, 30° inclined	WF 10x/18	Quadruple	HC (high contrast) 4x, 10x, 40x, 60x	Double layer, 125x116 mm, moving range 70x30 mm	Coaxial coarse and fine, limit stop	Abbe N.A. 1.25, iris diaphragm, focusable	1 W X-LED <sup>1</sup> , manual and <b>automatic brightness control</b>
<b>B-155ALC</b>	Monocular, 30° inclined	WF 10x/18	Quadruple	HC (high contrast) 4x, 10x, 40x, 100x	Double layer, 125x116 mm, moving range 70x30 mm	Coaxial coarse and fine, limit stop	Abbe N.A. 1.25, iris diaphragm, focusable	1 W X-LED <sup>1</sup> , manual and <b>automatic brightness control</b>
<b>B-157ALC</b>	Binocular, 30° inclined	WF 10x/18	Quadruple	HC (high contrast) 4x, 10x, 40x, 60x	Double layer, 125x116 mm, moving range 70x30 mm	Coaxial coarse and fine, limit stop	Abbe N.A. 1.25, iris diaphragm, focusable	1 W X-LED <sup>1</sup> , manual and <b>automatic brightness control</b>
<b>B-159ALC</b>	Binocular, 30° inclined	WF 10x/18	Quadruple	HC (high contrast) 4x, 10x, 40x, 100x	Double layer, 125x116 mm, moving range 70x30 mm	Coaxial coarse and fine, limit stop	Abbe N.A. 1.25, iris diaphragm, focusable	1 W X-LED <sup>1</sup> , manual and <b>automatic brightness control</b>

## B-150 - Cordless Models, with N-PLAN Objectives and Li-Ion Rechargeable Batteries

Model	Head	Eyepiece(s)	Nosepiece	Objectives	Stage	Focusing	Condenser	Illumination
<b>B-151R-PL</b>	Monocular, 30° inclined, 360° rotating	WF 10x/18	Quadruple	<b>N-PLAN</b> 4x, 10x, 40x	Fixed, 130x120 mm, with sample clips	Coaxial coarse and fine, limit stop	N.A. 0.65 fixed, with diaphragm	1 W X-LED <sup>1</sup> , manual brightness control, <b>Li-Ion</b> rechargeable battery
<b>B-152R-PL</b>	Monocular, 30° inclined, 360° rotating	WF 10x/18	Quadruple	<b>N-PLAN</b> 4x, 10x, 40x	Double layer, 125x116 mm, moving range 70x30 mm	Coaxial coarse and fine, limit stop	Abbe N.A. 1.25, iris diaphragm, focusable	1 W X-LED <sup>1</sup> , manual brightness control, <b>Li-Ion</b> rechargeable battery
<b>B-153R-PL</b>	Monocular, 30° inclined, 360° rotating	WF 10x/18	Quadruple	<b>N-PLAN</b> 4x, 10x, 40x, 60x	Double layer, 125x116 mm, moving range 70x30 mm	Coaxial coarse and fine, limit stop	Abbe N.A. 1.25, iris diaphragm, focusable	1 W X-LED <sup>1</sup> , manual brightness control, <b>Li-Ion</b> rechargeable battery
<b>B-155R-PL</b>	Monocular, 30° inclined, 360° rotating	WF 10x/18	Quadruple	<b>N-PLAN</b> 4x, 10x, 40x, 100x	Double layer, 125x116 mm, moving range 70x30 mm	Coaxial coarse and fine, limit stop	Abbe N.A. 1.25, iris diaphragm, focusable	1 W X-LED <sup>1</sup> , manual brightness control, <b>Li-Ion</b> rechargeable battery
<b>B-157R-PL</b>	Binocular, 30° inclined, 360° rotating	WF 10x/18	Quadruple	<b>N-PLAN</b> 4x, 10x, 40x, 60x	Double layer, 125x116 mm, moving range 70x30 mm	Coaxial coarse and fine, limit stop	Abbe N.A. 1.25, iris diaphragm, focusable	1 W X-LED <sup>1</sup> , manual brightness control, <b>Li-Ion</b> rechargeable battery
<b>B-159R-PL</b>	Binocular, 30° inclined, 360° rotating	WF 10x/18	Quadruple	<b>N-PLAN</b> 4x, 10x, 40x, 100x	Double layer, 125x116 mm, moving range 70x30 mm	Coaxial coarse and fine, limit stop	Abbe N.A. 1.25, iris diaphragm, focusable	1 W X-LED <sup>1</sup> , manual brightness control, <b>Li-Ion</b> rechargeable battery

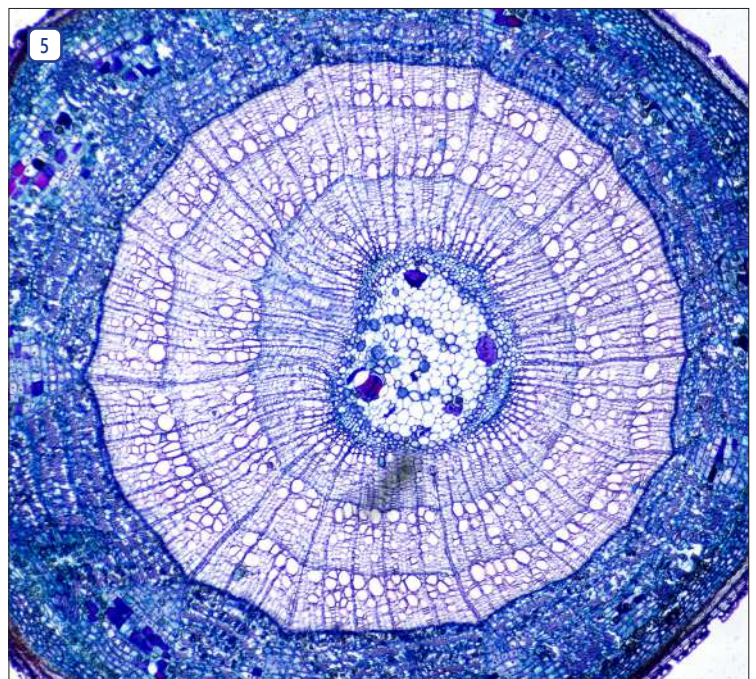
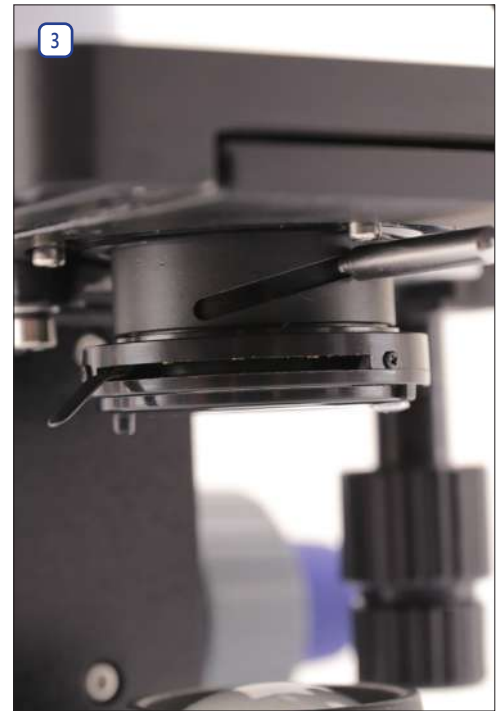
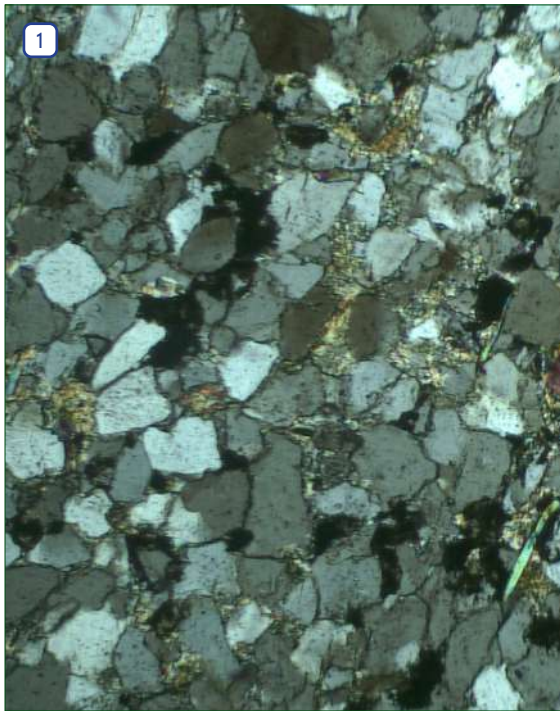
## B-150 - Polarized Light Cordless Models, with N-PLAN Objectives and Li-Ion Rechargeable Batteries

Model	Head	Eyepiece(s)	Nosepiece	Objectives	Stage	Focusing	Condenser	Illumination
<b>B-150P-MRPL</b>	Monocular, 30° inclined, 360° rotating	WF 10x/18	Quadruple	<b>N-PLAN</b> 4x, 10x, 40x	Round, 360° rotating, 120 mm diameter, with sample clips	Coaxial coarse and fine, limit stop	N.A. 1.25, iris diaphragm, fixed	1 W X-LED <sup>1</sup> , manual brightness control, <b>Li-Ion</b> rechargeable battery
<b>B-150P-BRPL</b>	Binocular, 30° inclined, 360° rotating	WF 10x/18	Quadruple	<b>N-PLAN</b> 4x, 10x, 40x	Round, 360° rotating, 120 mm diameter, with sample clips	Coaxial coarse and fine, limit stop	N.A. 1.25, iris diaphragm, fixed	1 W X-LED <sup>1</sup> , manual brightness control, <b>Li-Ion</b> rechargeable battery

## B-150 - Digital Cordless Models, with N-PLAN Objectives and Li-Ion Rechargeable Batteries

Model	Head	Eyepiece(s)	Nosepiece	Objectives	Stage	Focusing	Condenser	Illumination
<b>B-150D-MRPL</b>	Monocular, 30° inclined, 360° rotating	WF 10x/18	Quadruple	<b>N-PLAN</b> 4x, 10x, 40x	Double layer, 125x116 mm, moving range 70x30 mm	Coaxial coarse and fine, limit stop	Abbe N.A. 1.25, iris diaphragm, focusable	1 W X-LED <sup>1</sup> , manual brightness control, <b>Li-Ion</b> rechargeable battery
<b>B-150D-BRPL</b>	Binocular, 30° inclined, 360° rotating	WF 10x/18	Quadruple	<b>N-PLAN</b> 4x, 10x, 40x, 100x	Double layer, 125x116 mm, moving range 70x30 mm	Coaxial coarse and fine, limit stop	Abbe N.A. 1.25, iris diaphragm, focusable	1 W X-LED <sup>1</sup> , manual brightness control, <b>Li-Ion</b> rechargeable battery

# Middle-Level Biological Microscopes For Students



### Legend

1. Polarized light observation of quartzite with B-150P-MRPL and 10x objective.
2. Monocular polarizing microscope B-150P-MRPL during on-site use.
3. B-150 adjustable condenser to concentrate light from the illumination source.
4. Three achromatic objectives (4x, 10x, 40x) of B-151 ensuring great viewing experience.
5. Brightfield observation of tilia three-year stem with B-159 and 20x objective.

# B-150 Series - Accessories

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Educational

## Eyecups & Eyepieces

- M-001 Huygens 5x eyepiece
- M-002.1 WF10x/18 eyepiece, high eyepoint
- M-004 WF10x/18 micrometric eyepiece, high eyepoint
- M-008 WF10x/18 eyepiece, high eyepoint, with pointer
- M-003 WF16x/12 eyepiece
- M-162 WF20x/10 eyepiece

## Objectives

### HC

- M-137 HC (high contrast) objective 4x/0.10
- M-138 HC (high contrast) objective 10x/0.25
- M-139 HC (high contrast) objective 20x/0.40
- M-141 HC (high contrast) objective 40x/0.65
- M-142 HC (high contrast) objective 60x/0.85
- M-143 HC (high contrast) objective 100x/1.25 (oil)

### N-PLAN

- M-164 N-PLAN objective 4x/0.10
- M-165 N-PLAN objective 10x/0.25
- M-166 N-PLAN objective 20x/0.40
- M-167 N-PLAN objective 40x/0.65
- M-168 N-PLAN objective 60x/0.85
- M-169 N-PLAN objective 100x/1.25 (oil)

## Stages

- M-040 Attachable mechanical stage (only for B-151, B-151ALC and B-151R-PL)

## Condensers & Filters

- M-974 Blue filter, 32mm diameter
- M-976 Green filter, 32mm diameter
- M-978 Yellow filter, 32mm diameter
- M-988 Frosted glass filter, 32mm diameter
- M-155 Polarising set (filters only)

## Camera Adapters

- M-115 0.35x C-Mount projection lens
- M-114 0.5x C-Mount projection lens
- M-118 0.75x C-Mount projection lens

## Miscellaneous

- 15104 Cleaning kit
- 15008 Immersion oil, 10ml
- 15009 Immersion oil, 100ml
- DC-002 Plastic dust cover, medium, 490(l)x490(h) mm
- M-005 Micrometric slide, 26x76mm, with 2 scales (1mm/100 & 10mm/100)
- M-069 Solar charger
- M-972 Plane-concave mirror, with base

## M-069 - Solar charger

Included battery: rechargeable – Lithium-Poly. Capacity: 2500 mAh.  
Output voltage: 5 Vdc. -  
Autonomy: over 6 hours at medium intensity (X-LED<sup>3</sup>).  
Charging models: with solar panel (12h),  
with external USB power supply (2.5h)  
Not compatible with R models.



## 15104 - Cleaning kit

It cleans glass quickly and effectively,  
without leaving residue or odor.  
Ideal for precision lens or prism cleaning.



### How to connect the cameras to our microscopes.

Please refer to the Adapter reference list on Digital section.

v 6.5 - OPTIKA reserves the right to make corrections, modifications, enhancements, improvements and other changes to its products at any time without notice.

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## Headquarters and Manufacturing Facilities

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