EDUCATIONAL Microscopes
EDUCATIONAL Microscopes

**Biological Microscopes**

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**Icons**

- Field number
- Incident light
- Transmitted light
- LED illuminator
- X-LED illuminator
- Automatic light control
- Multi-plug low voltage power supply
- Rechargeable battery
- Li-Ion Rechargeable battery
- High contrast objectives
- N-Plan objectives (up to 20mm f.o.v)
- Oil/Water 100x objective
- Polarized light
- Fixed objective
- Zoom objective
- USB connection
- Tablet screen size
- Camera resolution
- Software included
- HDMI output
- MicroSD slot
- Wi-Fi
- BlueTooth
- IVD Available

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* The IVD code must be requested at order
ECOVISION Series

Entry-Level Biological Microscopes For Beginners
A Range Of Quality Microscopes For Beginners

EDUCATIONAL MICROSCOPES DESIGNED FOR NOVICE USERS
» Designed for novice users (students and primary schools especially)
» Easy to handle, also by the youngest users
» Longlife LED illumination (providing over 20 years of use)
» Compact, practical and intuitive to use
» Sturdy and durable for extended lifetime

COMFORTABLE, INTUITIVE & RELIABLE SOLUTIONS
» 18 mm field number for a wide observation area
» Achromatic optics ensuring good contrast and quality images
» Pre-aligned illumination and condenser to simplify operations
» Cordless use, totally independent from mains/batteries connection
» External power supply for enhanced safety and convenient servicing
A range of mainly cordless monocular microscopes ideal for students and mainly primary schools with achromatic lenses, FN 18 eyepiece, finite optical system, coaxial focusing, fixed or mechanical stage and 1 W LED illumination. Slim and easy to carry, all the models are equipped with long lasting LED illumination to provide over 20 years of use and, most of them, with rechargeable batteries.

**Easy to handle, also by the youngest users**
Extreme compactness and portability to ensure easy transportation in the classroom and outdoor, with slim body and useful handle for a facilitated and enjoyable teaching activity.

**Cordless use, totally independent from mains connection**
Most of the models work with or without the batteries in place and are provided with three NiMH rechargeable batteries for outdoor use (4-hour autonomy, at medium intensity).

**External power supply for enhanced safety and convenient servicing**
OPTIKAs 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.

**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.
**ECOVISION Series - B-20 Models**

**B-20R**

Cordless monocular microscope ideal for students and mainly primary schools, with achromatic lenses (400x), FN 18 eyepiece, finite optical system, round fixed stage and 0.3 W LED illumination with rechargeable batteries. Slim and easy to carry, it is equipped with long lasting LED illumination to provide over 20 years of use.

**Head:** Monocular, 45° inclined; 360° rotating.

**Eyepiece:** WF10x/18 mm.

**Nosepiece:** Triple ball bearings revolving nosepiece, reversed.

**Objectives:**
- Achromatic 4x/0.10
- Achromatic 10x/0.25
- Achromatic 40x/0.65

All with anti-fungus treatment.

**Specimen stage:** X-Y moving and 360° rotating, 90 mm diameter, with sample clips.

**Focusing:** Separate coarse and fine focusing mechanism with limit stop to prevent the contact between objective and specimen.

**Condenser:** Diffusing filter with rotating diaphragm wheel.

**Illumination:** 0.3 W LED, with brightness control, rechargeable batteries. Color temperature: 6,300 K. Multi-plug 100-240Vac/5Vdc external power supply.

**B-20CR**

Cordless monocular microscope ideal for students and mainly primary schools, with achromatic lenses (400x), FN 18 eyepiece, finite optical system, coaxial focusing, mechanical stage and 0.5 W LED illumination with rechargeable batteries. 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, 45° inclined; 360° rotating.

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

**Nosepiece:** Triple ball bearings revolving nosepiece, reversed.

**Objectives:**
- Achromatic 4x/0.10
- Achromatic 10x/0.25
- Achromatic 40x/0.65

All with anti-fungus treatment.

**Specimen stage:** Double layer, 105x95 mm, moving range 50x15 mm.

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

**Condenser:** N.A. 0.65 with iris diaphragm.

**Illumination:** 0.5 W LED, with brightness control, rechargeable batteries. Color temperature: 6,300 K. Multi-plug 100-240Vac/5Vdc external power supply.
**ECOVISION Series - M-100 Models**

**M-100FX**

Monocular microscope ideal for students and mainly primary schools, with achromatic lenses (400x), FN 18 eyepiece, finite optical system, coaxial focusing, fixed stage and fixed 1 W LED illumination. Slim and easy to carry, it is equipped with long lasting LED illumination to provide over 20 years of use.

**Head:** Monocular, 45° inclined; 360° rotating.

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

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

**Objectives:**
- Achromatic 4x/0.10
- Achromatic 10x/0.25
- Achromatic 40x/0.65.
All with anti-fungus treatment.

**Specimen stage:** Fixed stage, 120x110 mm, with sample clips.

**Focusing:** Separate coarse and fine focusing mechanism with limit stop to prevent the contact between objective and specimen.

**Condenser:** N.A. 0.65 with iris diaphragm.

**Illumination:** 1 W LED. Color temperature: 6,300 K. 100-240Vac/12Vdc external power supply.

**Order code:**
- M-100FX-EU Monocular brightfield microscope, EU
- M-100FX-UK Monocular brightfield microscope, UK adapter
- M-100FX-US Monocular brightfield microscope, US adapter

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**M-100FLed**

Cordless monocular microscope ideal for students and mainly primary schools, with achromatic lenses (400x), FN 18 eyepiece, finite optical system, coaxial focusing, fixed stage and 0.5 W LED illumination with rechargeable batteries. Slim and easy to carry, it is equipped with long lasting LED illumination to provide over 20 years of use.

**Head:** Monocular, 45° inclined; 360° rotating.

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

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

**Objectives:**
- Achromatic 4x/0.10
- Achromatic 10x/0.25
- Achromatic 40x/0.65.
All with anti-fungus treatment.

**Specimen stage:** Fixed stage, 120x110 mm, with sample clips.

**Focusing:** Separate coarse and fine focusing mechanism with limit stop to prevent the contact between objective and specimen.

**Condenser:** N.A. 0.65 with iris diaphragm.

**Illumination:** 0.5 W LED, with brightness control, rechargeable batteries. Color temperature: 6,300 K. 100-240Vac/4.6Vdc external power supply.

**Order code:**
- M-100FLed-EU Monocular brightfield microscope, EU
- M-100FLed-UK Monocular brightfield microscope, UK adapter
### ECOVISION Series - Comparison chart

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<td>X-Y moving, 360° rotating, 90 mm diameter, with sample clips</td>
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<td>Diffusing filter with rotating diaphragm wheel</td>
<td>0.3 W LED, with brightness control, rechargeable batteries</td>
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<tr>
<td>B-20CR</td>
<td>Monocular, 45° inclined, 360° rotating</td>
<td>WF 10x/18</td>
<td>Triple, reversed</td>
<td>Achromatic 4x, 10x, 40x</td>
<td>Double layer, 105x95 mm, moving range 50x15 mm</td>
<td>Coaxial coarse and fine</td>
<td>N.A. 0.65, with iris diaphragm</td>
<td>0.5 W LED, with brightness control, rechargeable batteries</td>
</tr>
<tr>
<td>M-100FX</td>
<td>Monocular, 45° inclined, 360° rotating</td>
<td>WF 10x/18</td>
<td>Triple</td>
<td>Achromatic 4x, 10x, 40x</td>
<td>Fixed, 120x110 mm, with sample clips</td>
<td>Separate coarse and fine</td>
<td>N.A. 0.65, with iris diaphragm</td>
<td>1 W LED</td>
</tr>
<tr>
<td>M-100FLed</td>
<td>Monocular, 45° inclined, 360° rotating</td>
<td>WF 10x/18</td>
<td>Triple</td>
<td>Achromatic 4x, 10x, 40x</td>
<td>Fixed, 120x110 mm, with sample clips</td>
<td>Separate coarse and fine</td>
<td>N.A. 0.65, with iris diaphragm</td>
<td>0.5 W LED, with brightness control, rechargeable batteries</td>
</tr>
</tbody>
</table>

### ECOVISION Series - Zoom comparison

- Ascaris female - 4x objective
- Ascaris female - 10x objective
- Ascaris female - 40x objective
ECOVISION Series - Accessories

ACCESSORIES FOR B-20R / B-20CR

Eyecups & Eyepieces
M-002.2 WF10x/18 eyepiece
M-003.2 WF15x/12 eyepiece
M-004.2 WF10x/18 micrometric eyepiece
M-008.2 WF10x/18 eyepiece, with pointer
M-162 WF20x/10 eyepiece

Additional Lenses
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
M-005 Micrometric slide, 26x76mm, with 2 scales (1mm/100 & 10mm/100)
M-069 Solar charger
DC-001 Plastic dust cover, small, 340(l)x400(h) mm

ACCESSORIES FOR M-100FX / M-100FLed

Eyecups & Eyepieces
M-001 Huygens 5x eyepiece
M-002.2 WF10x/18 eyepiece
M-004.2 WF10x/18 micrometric eyepiece
M-008.2 WF10x/18 eyepiece, with pointer
M-003.2 WF15x/12 eyepiece
M-162 WF20x/10 eyepiece

Objectives
M-131 Achromatic objective 4x/0.10
M-132 Achromatic objective 10x/0.25
M-133 Achromatic objective 20x/0.40
M-134 Achromatic objective 40x/0.65
M-135 Achromatic objective 60x/0.85
M-136 Achromatic objective 100x/1.25 (oil)

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

Stages
M-040 Attachable mechanical stage

Condensers & Filters
M-099 Polarising set (filters and rotating stage)

Miscellaneous
15008 Immersion oil, 10ml
15009 Immersion oil, 100ml
15104 Cleaning kit
DC-001 Plastic dust cover, small, 340(l)x400(h) mm
M-005 Micrometric slide, 26x76mm, with 2 scales (1mm/100 & 10mm/100)
M-069 Solar charger

How to connect the cameras to our microscopes.
Please refer to the Adapter reference list on Digital section.

M-069 - Solar charger
Included battery: rechargeable – Lithium-Poly. Capacity: 2500 mAh.
Output voltage: 5 Vdc.
Autonomy: over 6 hours at medium intensity (X-LED³).
Charging models: with solar panel (12h), with external USB power supply (2.5h).

15104 - Cleaning kit
It cleans glass quickly and effectively, without leaving residue or odor.
Ideal for precision lens or prism cleaning.
Headquarters and Manufacturing Facilities

**OPTIKA S.r.l.**
Via Rigla, 30 - 24010 Ponteranica (BG) - ITALY - Tel.: +39 035.571.392 - info@optikamicroscopes.com

Optika Sales branches

<table>
<thead>
<tr>
<th>Country</th>
<th>Email</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spain</td>
<td><a href="mailto:spain@optikamicroscopes.com">spain@optikamicroscopes.com</a></td>
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<tr>
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<td><a href="mailto:camerica@optikamicroscopes.com">camerica@optikamicroscopes.com</a></td>
</tr>
</tbody>
</table>

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B-60 Series

Entry-Level Biological Microscopes For Students
Cordless Educational Microscopes, Ideal To Start Exploring

**PERFECT FOR STUDENT’S FIRST EXPERIENCES**
- Designed for novice users (students and primary schools especially)
- Easy to handle, also by the youngest users
- Longlife LED illumination (providing over 20 years of use)
- Compact, practical and intuitive to use
- Sturdy and durable for extended lifetime

**COMFORTABLE, INTUITIVE & RELIABLE SOLUTIONS**
- 18 mm field number for a wide extended observation area
- StagErase™ eraseable stage to reduce scratches
- Arm/wrist rest support to reduce the fatigue during use
- Cordless use, totally independent from mains/batteries connection
- External power supply for enhanced safety and convenient servicing
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.

StagErase™ eraseable stage to remove scratches

Here's something you've never seen before! This new, revolutionary stage is coated with a special painting to reduce accidental scratches to the minimum and facilitate their removal.

B-60 Series

A wide range of cordless, modern microscopes ideal for students and mainly primary schools with achromatic lenses, FN 18 eyepieces, finite optical system, coaxial focusing, StagErase™ eraseable fixed or mechanical stage and 1 W LED illumination with rechargeable batteries. Slim and easy to carry, all the models are equipped with arm/wrist rest support to reduce the fatigue during use and long lasting LED illumination to provide over 20 years of use.

Arm/wrist rest support to reduce the fatigue during use

Students get relaxed and stay relaxed when using the microscope! Effective in preventing fatigue during operation, increasing the ergonomy and the performance as a result.

StagErase™ eraseable stage to remove scratches

Here's something you've never seen before! This new, revolutionary stage is coated with a special painting to reduce accidental scratches to the minimum and facilitate their removal.

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 outdoor use (4-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 heat flow inside the unit.

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.
B-60 Series - Models

B-61

Cordless, modern monocular microscope ideal for students and mainly primary schools with achromatic lenses (400x), FN 18 eyepiece, finite optical system, coaxial focusing, StagErase™ eraseable fixed stage and 1 W LED illumination with rechargeable batteries. Slim and easy to carry, it is equipped with arm/wrist rest support to reduce the fatigue during use and long lasting LED illumination to provide over 20 years of use.

**Head:** Monocular, 45° inclined; 360° rotating.

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

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

**Objectives:**
- Achromatic 4x/0.10
- Achromatic 10x/0.25
- Achromatic 40x/0.65
All with anti-fungus treatment.

**Specimen stage:** StagErase™ eraseable fixed stage, 120x110 mm, with sample clips.

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

**Condenser:** Abbe N.A. 0.65 with iris diaphragm.

**Illumination:** 1 W LED, with brightness control, rechargeable batteries. Color temperature: 6,300 K. Multi-plug 100-240Vac/5Vdc external power supply.

B-62

Cordless, modern monocular microscope ideal for students and mainly primary schools with achromatic lenses (400x), FN 18 eyepiece, finite optical system, coaxial focusing, StagErase™ eraseable mechanical stage, Abbe condenser and 1 W LED illumination with rechargeable batteries. Slim and easy to carry, it is equipped with arm/wrist rest support to reduce the fatigue during use and long lasting LED illumination to provide over 20 years of use.

**Head:** Monocular, 45° inclined; 360° rotating.

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

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

**Objectives:**
- Achromatic 4x/0.10
- Achromatic 10x/0.25
- Achromatic 40x/0.65
All with anti-fungus treatment.

**Specimen stage:** StagErase™ eraseable mechanical stage, 125x125 mm, 62x24 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.

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

**Illumination:** 1 W LED, with brightness control, rechargeable batteries. Color temperature: 6,300 K. Multi-plug 100-240Vac/5Vdc external power supply.
Cordless, modern monocular microscope ideal for students and mainly primary schools with achromatic lenses (600x), FN 18 eyepiece, finite optical system, coaxial focusing, StagErase™ eraseable mechanical stage, Abbe condenser and 1 W LED illumination with rechargeable batteries. Slim and easy to carry, it is equipped with arm/wrist rest support to reduce the fatigue during use and long lasting LED illumination to provide over 20 years of use.

**Head:** Monocular, 45° inclined, 360° rotating.

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

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

**Objectives:**
- Achromatic 4x/0.10
- Achromatic 10x/0.25
- Achromatic 40x/0.65
- Achromatic 60x/0.85
All with anti-fungus treatment.

**Specimen stage:** StagErase™ eraseable mechanical stage, 125x125 mm, 62x24 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.

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

**Illumination:** 1 W LED, with brightness control, rechargeable batteries. Color temperature: 6,300 K. Multi-plug 100-240Vac/5Vdc external power supply.

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Cordless, modern monocular microscope ideal for students and mainly primary schools with achromatic lenses (1000x), FN 18 eyepiece, finite optical system, coaxial focusing, StagErase™ eraseable mechanical stage, Abbe condenser and 1 W LED illumination with rechargeable batteries. Slim and easy to carry, it is equipped with arm/wrist rest support to reduce the fatigue during use and long lasting LED illumination to provide over 20 years of use.

**Head:** Monocular, 45° inclined, 360° rotating.

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

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

**Objectives:**
- Achromatic 4x/0.10
- Achromatic 10x/0.25
- Achromatic 40x/0.65
- Achromatic 100x/1.25 (oil).
All with anti-fungus treatment.

**Specimen stage:** StagErase™ eraseable mechanical stage, 125x125 mm, 62x24 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.

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

**Illumination:** 1 W LED, with brightness control, rechargeable batteries. Color temperature: 6,300 K. Multi-plug 100-240Vac/5Vdc external power supply.
B-66

Cordless, modern binocular microscope ideal for students and mainly primary schools with achromatic lenses (400x), FN 18 eyepieces, finite optical system, coaxial focusing, StagErase™ eraseable mechanical stage, Abbe condenser and 1 W LED illumination with rechargeable batteries. Slim and easy to carry, it is equipped with arm/wrist rest support to reduce the fatigue during use and long lasting LED illumination to provide over 20 years of use.

**Head**: Binocular, 30° inclined; 360° rotating. Dioptric adjustment: Left eyepiece.

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

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

**Objectives**:
- Achromatic 4x/0.10
- Achromatic 10x/0.25
- Achromatic 40x/0.65.
  All with anti-fungus treatment.

**Specimen stage**: StagErase™ eraseable mechanical stage, 125x125 mm, 62x24 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.

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

**Illumination**: 1 W LED, with brightness control, rechargeable batteries. Color temperature: 6,300 K. Multi-plug 100-240Vac/5Vdc external power supply.

B-67

Cordless, modern binocular microscope ideal for students and mainly primary schools with achromatic lenses (600x), FN 18 eyepieces, finite optical system, coaxial focusing, StagErase™ eraseable mechanical stage, Abbe condenser and 1 W LED illumination with rechargeable batteries. Slim and easy to carry, it is equipped with arm/wrist rest support to reduce the fatigue during use and long lasting LED illumination to provide over 20 years of use.

**Head**: Binocular, 30° inclined; 360° rotating. Dioptric adjustment: Left eyepiece.

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

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

**Objectives**:
- Achromatic 4x/0.10
- Achromatic 10x/0.25
- Achromatic 40x/0.65
- Achromatic 60x/0.85.
  All with anti-fungus treatment.

**Specimen stage**: StagErase™ eraseable mechanical stage, 125x125 mm, 62x24 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.

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

**Illumination**: 1 W LED, with brightness control, rechargeable batteries. Color temperature: 6,300 K. Multi-plug 100-240Vac/5Vdc external power supply.
B-69

Cordless, modern binocular microscope ideal for students and mainly primary schools with achromatic lenses (1000x), FN 18 eyepieces, finite optical system, coaxial focusing. StagErase™ erasable mechanical stage, Abbe condenser and 1 W LED illumination with rechargeable batteries. Slim and easy to carry, it is equipped with arm/wrist rest support to reduce the fatigue during use and long lasting LED illumination to provide over 20 years of use.

**Head:** Binocular, 30° inclined; 360° rotating.
Dioptric adjustment: Left eyepiece.

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

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

**Objectives:**
- Achromatic 4x/0.10
- Achromatic 10x/0.25
- Achromatic 40x/0.65
- Achromatic 100x/1.25 (oil).
All with anti-fungus treatment.

**Specimen stage:** StagErase™ erasable mechanical stage, 125x125 mm, 62x24 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.

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

**Illumination:** 1 W LED, with brightness control, rechargeable batteries. Color temperature: 6,300 K. Multi-plug 100-240Vac/5Vdc external power supply.

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### B-60 Series - Comparison chart

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<thead>
<tr>
<th>Model</th>
<th>Head</th>
<th>Eyepiece(s)</th>
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<th>Focusing</th>
<th>Condenser</th>
<th>Illuminator</th>
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<td>Quadruple, reversed</td>
<td>Achromatic 4x, 10x, 40x</td>
<td>Fixed, 120x110 mm</td>
<td>Coaxial coarse and fine focusing</td>
<td>N.A. 0.65 with iris diaphragm</td>
<td>1 W LED, brightness control, rechargeable batteries</td>
</tr>
<tr>
<td>B-62</td>
<td>Monocular, 360° rotating, 45° inclined</td>
<td>Wide Field 10x/18mm</td>
<td>Quadruple, reversed</td>
<td>Achromatic 4x, 10x, 40x</td>
<td>Mechanical, 125x125 mm with 62x24 mm X-Y moving range</td>
<td>Coaxial coarse and fine focusing</td>
<td>N.A. 1.25 Abbe type with iris diaphragm</td>
<td>1 W LED, brightness control, rechargeable batteries</td>
</tr>
<tr>
<td>B-63</td>
<td>Monocular, 360° rotating, 45° inclined</td>
<td>Wide Field 10x/18mm</td>
<td>Quadruple, reversed</td>
<td>Achromatic 4x, 10x, 40x, 60x</td>
<td>Mechanical, 125x125 mm with 62x24 mm X-Y moving range</td>
<td>Coaxial coarse and fine focusing</td>
<td>N.A. 1.25 Abbe type with iris diaphragm</td>
<td>1 W LED, brightness control, rechargeable batteries</td>
</tr>
<tr>
<td>B-65</td>
<td>Monocular, 360° rotating, 45° inclined</td>
<td>Wide Field 10x/18mm</td>
<td>Quadruple, reversed</td>
<td>Achromatic 4x, 10x, 40x, 100x (oil)</td>
<td>Mechanical, 125x125 mm with 62x24 mm X-Y moving range</td>
<td>Coaxial coarse and fine focusing</td>
<td>N.A. 1.25 Abbe type with iris diaphragm</td>
<td>1 W LED, brightness control, rechargeable batteries</td>
</tr>
<tr>
<td>B-66</td>
<td>Binocular, 360° rotating, 30° inclined</td>
<td>Wide Field 10x/18mm</td>
<td>Quadruple, reversed</td>
<td>Achromatic 4x, 10x, 40x</td>
<td>Mechanical, 125x125 mm with 62x24 mm X-Y moving range</td>
<td>Coaxial coarse and fine focusing</td>
<td>N.A. 1.25 Abbe type with iris diaphragm</td>
<td>1 W LED, brightness control, rechargeable batteries</td>
</tr>
<tr>
<td>B-67</td>
<td>Binocular, 360° rotating, 30° inclined</td>
<td>Wide Field 10x/18mm</td>
<td>Quadruple, reversed</td>
<td>Achromatic 4x, 10x, 40x, 60x</td>
<td>Mechanical, 125x125 mm with 62x24 mm X-Y moving range</td>
<td>Coaxial coarse and fine focusing</td>
<td>N.A. 1.25 Abbe type with iris diaphragm</td>
<td>1 W LED, brightness control, rechargeable batteries</td>
</tr>
<tr>
<td>B-69</td>
<td>Binocular, 360° rotating, 30° inclined</td>
<td>Wide Field 10x/18mm</td>
<td>Quadruple, reversed</td>
<td>Achromatic 4x, 10x, 40x, 100x (oil)</td>
<td>Mechanical, 125x125 mm with 62x24 mm X-Y moving range</td>
<td>Coaxial coarse and fine focusing</td>
<td>N.A. 1.25 Abbe type with iris diaphragm</td>
<td>1 W LED, brightness control, rechargeable batteries</td>
</tr>
</tbody>
</table>
B-60 Series - Accessories

**Eyecups & Eyepieces**
- M-001 Huygens 5x eyepiece
- M-002 2 WF10x/18 eyepiece
- M-004 2 WF10x/18 micrometric eyepiece
- M-008 2 WF10x/18 eyepiece, with pointer
- M-003 2 WF15x/12 eyepiece
- M-162 WF20x/10 eyepiece

**Stages**
- M-040 Attachable mechanical stage (only for B-61)

**Condensers & Filters**
- M-155 2 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**
- 15008 Immersion oil, 10ml
- 15009 Immersion oil, 100ml
- 15104 Cleaning kit
- DC-001 Plastic dust cover, small, 340(l)x400(h) mm
- M-003 Micrometric slide, 26x76mm, with 2 scales (1mm/100 & 10mm/100)
- M-069 Solar charger
- M-970 Plane-concave mirror, with base (only for B-61)

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15104 - Cleaning kit
It cleans glass quickly and effectively, without leaving residue or odor. Ideal for precision lens or prism cleaning.

M-069 - Solar charger
Included battery: rechargeable – Lithium-Poly. Capacity: 2500 mAh. Output voltage: 5 Vdc. - Autonomy: over 6 hours at medium intensity (X-LED³). Charging models: with solar panel (12h), with external USB power supply (2.5h)

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How to connect the cameras to our microscopes.
Please refer to the Adapter reference list on Digital section.
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

**X-LED** 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)

*100x Oil*  
*100x Water*  
*Halogen*  
*X-LED*  

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
Plenty Of Smart & Innovative Light-Related Technologies

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

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**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 illumination. Slim and easy to carry, the LED illumination will 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.
  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-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-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 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.

HC

OPTIKA HC Objective

N-PLAN

OPTIKA N-PLAN Objective

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

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.
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 \textit{X-LED} 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.

\begin{itemize}
  \item **Head:** Monocular, 30° inclined; 360° rotating.
  \item **Eyepiece:** WF10x/18 mm, high eyepoint, secured by screw.
  \item **Nosepiece:** Quadruple ball bearings revolving nosepiece.
  \item **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.
  \item **Specimen stage:** Mechanical stage, 125x116 mm, 70x30 mm X-Y movement range. Vernier scale on the two axes, accuracy: 0.1 mm.
  \item **Focusing:** Coaxial coarse and fine focusing mechanism with limit stop to prevent the contact between objective and specimen. Adjustable tension of coarse focusing knob.
  \item **Condenser:** Abbe N.A. 1.25, pre-centered, focusable, with iris diaphragm.
  \item **Illumination:** \textit{X-LED}, with white 1 W LED and brightness control. Color temperature: 6,300 K. Multi-plug 100-240Vac/5Vdc external power supply.
\end{itemize}
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™ 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™ 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

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

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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\(^1\) 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\(^1\) 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.
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 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 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 - Standard Models

**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 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
- 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 with white 1 W LED and brightness control.

Color temperature: 6,300 K. Multi-plug 100-240Vac/5Vdc external power supply.

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**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 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.

**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
- 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 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-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, 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
- 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-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

**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-159

Binocular microscope ideal for students and primary schools, with four achromatic lenses (100x), FN 18 high eyepoint eyepieces, finite optical system, coaxial focusing, mechanical stage, Abbe condenser and powerful, uniform, white color temperature 1 W X-LED 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.

**Diopter 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 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 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).

**Diopter 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 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-LED 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.

**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
- 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® 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

**OPTIKA HC Objective**

**OPTIKA N-PLAN Objective**
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 eye-point eyepiece, finite optical system, coaxial focusing, rotating stage, Abbe condenser and powerful, uniform, white color temperature 1 W X-LED\(^1\) 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 eye-point, 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\(^1\) 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 eye-point eyepieces, finite optical system, coaxial focusing, rotating stage, Abbe condenser and powerful, uniform, white color temperature 1 W X-LED\(^1\) 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.

**Diopteric adjustment:** Left eyepiece.

**Eyepieces:** WF10x/18 mm, high eye-point, 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\(^1\) 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-150D-MRPL**

Cordless digital monocular microscope ideal for students and primary schools, with three PLAN aplanatic 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 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 aplanatic 4x/0.10
- N-PLAN plan aplanatic 10x/0.25
- N-PLAN plan aplanatic 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 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 aplanatic 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 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.

**Diopter adjustment:** Left eyepiece.

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

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

**Objectives:**
- N-PLAN plan aplanatic 4x/0.10
- N-PLAN plan aplanatic 10x/0.25
- N-PLAN plan aplanatic 40x/0.65
- N-PLAN plan aplanatic 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 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

<table>
<thead>
<tr>
<th></th>
<th>B-150D-MRPL</th>
<th>B-150D-BRPL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resolution</td>
<td>1280x1024 pixels (1.3 MP)</td>
<td>2048x1536 pixels (3.14 MP)</td>
</tr>
<tr>
<td>Sensor</td>
<td>1/3.2&quot;CMOS</td>
<td>1/2.5&quot;CMOS</td>
</tr>
<tr>
<td>Pixel size</td>
<td>2.8x2.8 μm</td>
<td>2.2x2.2 μm</td>
</tr>
<tr>
<td>Resolution &amp; Frame Rate</td>
<td>1280x1024 - 15 fps</td>
<td>2048x1536 - 4 fps</td>
</tr>
<tr>
<td></td>
<td>640x480 - 30 fps</td>
<td>1280x1024 - 8 fps</td>
</tr>
<tr>
<td></td>
<td>640x480 - 30 fps</td>
<td></td>
</tr>
<tr>
<td>Sensitivity</td>
<td>1.0 V/Lux-sec</td>
<td>0.53 V/Lux-sec</td>
</tr>
<tr>
<td>S/N Ratio</td>
<td>≥ 40 dB</td>
<td>≥ 40 dB</td>
</tr>
<tr>
<td>Dynamic Range</td>
<td>≥ 66.5 dB</td>
<td>≥ 66.5 dB</td>
</tr>
<tr>
<td>Digital Port</td>
<td>USB 2.0</td>
<td>USB 2.0</td>
</tr>
<tr>
<td>Imaging Software</td>
<td>OPTIKA Vision Lite</td>
<td>OPTIKA Vision Lite</td>
</tr>
<tr>
<td>System Requirements</td>
<td>Operating system: Windows XP, Vista, Win7, Win8, Win10, 32-64 bit</td>
<td></td>
</tr>
</tbody>
</table>

### B-150 Series - Optical performance

<table>
<thead>
<tr>
<th>Eyepiece</th>
<th>10x (M-002.1)</th>
<th>16x (M-003)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Field number (mm)</td>
<td>N.A.</td>
<td>W.D. (mm)</td>
</tr>
<tr>
<td>4x</td>
<td>0.1</td>
<td>18</td>
</tr>
<tr>
<td>10x</td>
<td>0.25</td>
<td>7</td>
</tr>
<tr>
<td>20x</td>
<td>0.4</td>
<td>2</td>
</tr>
<tr>
<td>40x</td>
<td>0.65</td>
<td>0.53</td>
</tr>
<tr>
<td>60x</td>
<td>0.8</td>
<td>0.45</td>
</tr>
<tr>
<td>100x</td>
<td>1.25 (oil/water)</td>
<td>0.13</td>
</tr>
</tbody>
</table>

### 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

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

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

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

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

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

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

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

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

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

**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
  - It cleans glass quickly and effectively, without leaving residue or odor. Ideal for precision lens or prism cleaning.
  - M-069 - Solar charger
    - Included battery: rechargeable – Lithium-Poly. Capacity: 2500 mAh.
    - Output voltage: 5 Vdc.
    - Autonomy: over 6 hours at medium intensity (X-LED³).
    - Charging models: with solar panel (12h), with external USB power supply (2.5h)
    - Not compatible with R models.
- 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-972 Plane-concave mirror, with base

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**How to connect the cameras to our microscopes.**
Please refer to the Adapter reference list on Digital section.
B-190 Series

Advanced Biological Microscopes For Students
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

WINDOWS TABLET PC - 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 included)
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

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

Multi-plug power supply

Inventors of a new way to teach microscopy
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 most well suited for eyeglasses wearers.

X-LED\(^2\) 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 it eliminates tedious cleaning.

A completely new, revolutionary experience for unparalleled comfort
B-190TB includes built-in camera and Windows tablet PC 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.

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-LED\(^2\) illumination. Slim and easy to carry, all the models are equipped with long lasting LED illumination to provide over 20 years of use.
**Optimum And Unparalleled Comfort In Use**

The B-190TB offers you a unique, incomparable solution. It includes a built-in camera of 3.1 MP and a Windows tablet 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 tablet, easily detachable, that can be used as a laptop.

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**Get the most out of our accessories**

**M-174 - Polarizing set**

Set for simple polarization analysis. Upgrade your B-190 to a polarizing microscope and look at birefringent samples.
Monocular microscope ideal for teachers and secondary schools, with four achromatic lenses (600x), FN 18 high eyepoint, finite optical system, coaxial focusing, mechanical stage, Abbe condenser and powerful, uniform, white color temperature 3 W X-LED 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:** Monocular, 30° inclined; 360° rotating.

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

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

**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, 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.

Monocular microscope ideal for teachers and secondary schools, with four achromatic lenses (1000x), FN 18 high eyepoint, finite optical system, coaxial focusing, mechanical stage, Abbe condenser and powerful, uniform, white color temperature 3 W X-LED 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:** Monocular, 30° inclined; 360° rotating.

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

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

**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, 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-192s

Binocular microscope ideal for teachers and secondary schools, with four achromatic lenses (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:**
- 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, 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-192

Binocular microscope ideal for teachers and secondary schools, with four achromatic lenses (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:**
- 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, 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-193

Trinocular microscope for camera connection ideal for teachers and secondary schools, with four achromatic lenses (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:**
- 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, 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-190TB

Digital binocular microscope ideal for teachers and secondary schools, with four achromatic lenses (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 a Windows tablet PC with vivid color graphic display for unparalleled comfort and performance. The tablet 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. Detachable Windows tablet PC 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:**
- 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, 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-190TB - Digital Microscope with Camera & Tablet

The latest OPTIKA digital microscopes with Windows tablet PC open new microscopy horizons, combining high-end optics with innovative digital technology for microscopic imaging. B-190TB includes a 3.1 MP camera with a 10.8" Windows tablet. View, capture, analyze and share your images with simplicity and reliability.

Unique Features
- Simultaneous camera & power connection
- Equipped with the latest Windows OS & Intel processor
- Easily detachable, can be used as a laptop (keyboard included)

Intuitive, Yet Powerful Software
Simple and user-friendly, ideal for students and experienced users.

360° Rotating & Tilting

Detachable
### TABLET TECHNICAL SPECIFICATIONS

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model</td>
<td>Tablet 10.8&quot;</td>
</tr>
<tr>
<td>Operating System</td>
<td>Windows 10 (64Bit)</td>
</tr>
<tr>
<td>Language</td>
<td>Multilanguages already installed</td>
</tr>
<tr>
<td>Image capturing software</td>
<td>OPTIKA Vision lite</td>
</tr>
<tr>
<td>CPU</td>
<td>Intel® Atom™ Z8350, Quad core</td>
</tr>
<tr>
<td>CPU speed</td>
<td>1.44 GHz</td>
</tr>
<tr>
<td>Graphics Card</td>
<td>Intel® HD Graphics 400</td>
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<tr>
<td>Memory</td>
<td>Ram 4 GB, LPDDR3</td>
</tr>
<tr>
<td>LCD display</td>
<td>LED 10.1&quot; IPS Multi Touch Screen</td>
</tr>
<tr>
<td>LCD resolution</td>
<td>1920x1200</td>
</tr>
<tr>
<td>Storage</td>
<td>HDD 64GB</td>
</tr>
<tr>
<td>Network</td>
<td>Wireless, Bluetooth 4.0</td>
</tr>
<tr>
<td>Input/output ports</td>
<td>Micro USB (OTG) - USB Type-C - Micro SD card reader - Microphone - Headphone - Micro HDMI</td>
</tr>
<tr>
<td>Control Buttons</td>
<td>Auto rotate off, volume control</td>
</tr>
<tr>
<td>Battery Technology</td>
<td>Lithium-ion battery, 2x cell</td>
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<tr>
<td>Battery capacity</td>
<td>8400 mAh</td>
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<tr>
<td>Max load</td>
<td>15 W</td>
</tr>
<tr>
<td>Dimensions</td>
<td>Thickness 9 mm, Height 167mm, Width 261mm</td>
</tr>
<tr>
<td>Weight</td>
<td>530 g</td>
</tr>
<tr>
<td>Cables included</td>
<td>OTG cable (micro USB-B to USB-A), USB cable USB-B to USB-A (0.5m)</td>
</tr>
<tr>
<td>Also included</td>
<td>Keyboard, Touch pen</td>
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</table>

### CAMERA TECHNICAL SPECIFICATIONS

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
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</thead>
<tbody>
<tr>
<td>Digital camera resolution</td>
<td>3.14 MPixel</td>
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<tr>
<td>Signal output</td>
<td>USB 2.0</td>
</tr>
<tr>
<td>Sensor Size</td>
<td>1/2.5&quot;</td>
</tr>
<tr>
<td>Sensor technology</td>
<td>CMOS</td>
</tr>
<tr>
<td>Image format</td>
<td>4:3</td>
</tr>
<tr>
<td>Full Image size</td>
<td>2048 x 1536</td>
</tr>
<tr>
<td>Pixel size</td>
<td>2.2 x 2.2 micron</td>
</tr>
<tr>
<td>Frame rate full resolution</td>
<td>5 frames/sec</td>
</tr>
<tr>
<td>Frame rate other resolutions</td>
<td>8 FPS (1280x1024) - 30FPS (640x480)</td>
</tr>
<tr>
<td>Automatic White Balance</td>
<td>Auto - Man</td>
</tr>
<tr>
<td>Automatic Gain Control</td>
<td>Auto - Man</td>
</tr>
<tr>
<td>Automatic Back light control</td>
<td>Auto - Man</td>
</tr>
<tr>
<td>Exposure control</td>
<td>Auto - Man</td>
</tr>
</tbody>
</table>
B-190 Series - Optical performance

<table>
<thead>
<tr>
<th>Eyepiece</th>
<th>N.A.</th>
<th>W.D (mm)</th>
<th>Total magnification</th>
<th>Field of View (mm)</th>
<th>Total magnification</th>
<th>Field of View (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>10x</td>
<td>0.1</td>
<td>16</td>
<td>40x</td>
<td>4.5</td>
<td>64x</td>
<td>3.0</td>
</tr>
<tr>
<td>20x</td>
<td>0.25</td>
<td>7</td>
<td>100x</td>
<td>1.8</td>
<td>160x</td>
<td>1.2</td>
</tr>
<tr>
<td>40x</td>
<td>0.4</td>
<td>2</td>
<td>200x</td>
<td>0.9</td>
<td>320x</td>
<td>0.6</td>
</tr>
<tr>
<td>60x</td>
<td>0.65</td>
<td>0.53</td>
<td>400x</td>
<td>0.45</td>
<td>640x</td>
<td>0.3</td>
</tr>
<tr>
<td>100x</td>
<td>1.25 (oil/water)</td>
<td>0.13</td>
<td>1000x</td>
<td>0.18</td>
<td>1600x</td>
<td>0.12</td>
</tr>
</tbody>
</table>

OPTIKA HC objectives ensure a versatile and reasonably priced entry-level lenses for brightfield, darkfield 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.

B-190 Series - Zoom comparison

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

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

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

B-190 Series - Comparison chart

<table>
<thead>
<tr>
<th>Model</th>
<th>Head</th>
<th>Eyepiece(s)</th>
<th>Nosepiece</th>
<th>Objectives</th>
<th>Stage</th>
<th>Focusing</th>
<th>Condenser</th>
<th>Illuminator</th>
</tr>
</thead>
<tbody>
<tr>
<td>B-191s</td>
<td>Monocular; 360° rotating, 30° inclined</td>
<td>Wide Field 10x/18mm</td>
<td>Quadruple, reversed</td>
<td>HC Achromatic 4x, 10x, 40x, 60x</td>
<td>Double layer, 12x/155 mm with 70x30mm X-Y moving range</td>
<td>Coaxial coarse and fine focusing</td>
<td>N.A. 1.25 Abbe type with adjustable height and iris diaphragm</td>
<td>3 W X-LED®, brightness control</td>
</tr>
<tr>
<td>B-191</td>
<td>Monocular; 360° rotating, 30° inclined</td>
<td>Wide Field 10x/18mm</td>
<td>Quadruple, reversed</td>
<td>HC Achromatic 4x, 10x, 40x, 100x</td>
<td>Double layer, 12x/155 mm with 70x30mm X-Y moving range</td>
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<td>Binocular; 360° rotating, 30° inclined</td>
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</tr>
<tr>
<td>B-192</td>
<td>Binocular; 360° rotating, 30° inclined</td>
<td>Wide Field 10x/18mm</td>
<td>Quadruple, reversed</td>
<td>HC Achromatic 4x, 10x, 40x, 100x</td>
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<td>B-193</td>
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<td>N.A. 1.25 Abbe type with adjustable height and iris diaphragm</td>
<td>3 W X-LED®, brightness control</td>
</tr>
<tr>
<td>B-190TB</td>
<td>Binocular; digital 360° rotating, 30° inclined</td>
<td>Wide Field 10x/18mm</td>
<td>Quadruple, reversed</td>
<td>HC Achromatic 4x, 10x, 40x, 100x</td>
<td>Double layer, 12x/155 mm with 70x30mm X-Y moving range</td>
<td>Coaxial coarse and fine focusing</td>
<td>N.A. 1.25 Abbe type with adjustable height and iris diaphragm</td>
<td>3 W X-LED®, brightness control</td>
</tr>
</tbody>
</table>
B-190 Series - Accessories

**Eyepieces & 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**
- 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)

**Condensers & Filters**
- M-174 Polarising set (filters only)
- M-974 Blue filter, 32 mm diameter
- M-976 Green filter, 32 mm diameter
- M-978 Yellow filter, 32 mm diameter
- M-988 Frosted glass filter, 32 mm diameter

**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
- M-173 C-Mount projection lens for APS-C/full frame reflex cameras (trino)

**Miscellaneous**
- 15104 Cleaning kit
- 15008 Immersion oil, 10ml
- 15009 Immersion oil, 100ml
- DC-002 Plastic dust cover, medium, 4900x490(h) mm (except for B-190TB)
- DC-003 TNT dust cover, medium, 6000x550(h) mm (only for B-190TB)
- TB-K8D1 Keyboard for tablet (only for B-190TB)
- M-005 Micrometric slide, 26x76mm, with 2 scales (1mm/100 & 10mm/100)
- M-069 Solar charger
- M-971 Plane-concave mirror, with base
- VP-190 IQ/QQ/PQ manual for B-190 series
- VP-TB IQ/QQ/PQ manual for TB series

**M-069 - Solar charger**
- Included battery: rechargeable – Lithium-Poly. Capacity: 2500 mAh.
- Output voltage: 5 Vdc.
- Autonomy: over 6 hours at medium intensity (X-LED³).
- Charging models: with solar panel (12h), with external USB power supply (2.5h)

**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.

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v 6.5 - OPTIKA reserves the right to make corrections, modifications, enhancements, improvements and other changes to its products at any time without notice.
Entry-Level Monoscopy & Stereomicroscopes For Students
EDUCATIONAL STEREOMICROSCOPES DESIGNED FOR NOVICE USERS
» Particularly recommended for primary/secondary schools & amateurs
» 3D Greenough view for high resoluted 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
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.
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.

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.
### MS-1

Portable monoscope ideal as multifunctional testing equipment especially for surface analysis and measurements to be used directly on the specimen. Equipped with fixed objective (10x), FN 15.5 eyepiece with crosshair and 0.3 W LED penlight for incident illumination powered by rechargeable batteries.

**Eyepiece:** WF10x/15.5 mm, micrometric with crosshair.

**Objective:** Achromatic 10x with anti-fungus treatment.

**Working distance:** 6 mm.

**Focusing:** Rack and pinion focusing mechanism.

**Illumination:** 0.3 W LED incident penlight with batteries (not included).

### MS-2

Portable entry-level monoscope ideal for kids, with fixed objective (2x), FN 16 eyepiece and fixed stand. Slim and easy to carry.

**Head:** Monocular, 45° inclined; 360° rotating.

**Eyepiece:** WF10x/16 mm.

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

**Working distance:** 57 mm.

**Stand:** Pillar with focus.

**Focusing:** Rack and pinion focusing mechanism.

### STX

Cordless entry-level binocular stereomicroscope ideal for kids to dissect and discover mainly biology and materials science in 3D, with fixed objective (2x), FN 16 eyepieces, fixed stand and 0.1 W LED incident illumination and rechargeable batteries. Slim and easy to carry.

**Head:** Binocular, vertical.

**Eyepieces:** WF10x/16 mm.

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

**Working distance:** 67 mm.

**Stand:** Fixed with focus.

**Focusing:** Rack and pinion focusing mechanism.

**Illumination:** 0.1 W LED incident, with batteries (not included).
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, pillar stand and 1 W LED transmitted / incident illumination. Slim and easy to carry, it is equipped with long lasting LED illumination to provide over 20 years of use.

**Head:** Binocular, 45° inclined.

**Dioptic adjustment:** Left eyepiece.

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

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

**Working distance:** 57 mm

**Stand:** Pillar with focus.

**Focusing:** Rack and pinion focusing mechanism.

**Illumination:** 1 W LED incident and transmitted. Color temperature: 6,300 K. Multi-plug 100-240Vac/6Vdc external power supply.

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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, pillar stand and 1 W LED transmitted / incident illumination with rechargeable batteries. Slim and easy to carry, it is equipped with long lasting LED illumination to provide over 20 years of use.

**Head:** Binocular, 45° inclined.

**Dioptic 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:** Pillar with focus.

**Focusing:** Rack and pinion focusing mechanism.

**Illumination:** 1 W LED incident and transmitted, with brightness control, rechargeable batteries. Color temperature: 6,300 K. Multi-plug 100-240Vac/6Vdc external power supply.
Cordless binocular stereomicroscope ideal for students, schools and amateurs to dissect and discover mainly biology and materials science in 3D, with turnable objective (1x-3x), FN 20 eyepieces, fixed arm with handle and 1 W LED transmitted / incident illumination with comfortable touch control and rechargeable batteries. 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 1x-3x with anti-fungus treatment.

**Working distance:** 57 mm.

**Stand:** Pillar with focus.

**Focusing:** Rack and pinion focusing mechanism.

**Illumination:** 1 W LED incident and transmitted, with brightness control, rechargeable batteries. Color temperature: 6,300 K.

**Order code:**
- SFX-32-EU With EU plug
- SFX-32-UK With UK plug
- SFX-32-US With US plug

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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. 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. Color temperature: 6,300 K. Multi-plug 100-240Vac/6Vdc external power supply.
Cordless binocular stereomicroscope ideal for students, schools and amateurs to dissect and discover mainly biology and materials science in 3D, with turnable objective (1x-3x), FN 20 eyepieces, fixed arm with handle and 1 W LED transmitted / incident illumination with comfortable touch control and rechargeable batteries. Slim and easy to carry, it is equipped with long lasting LED illumination to provide over 20 years of use.

**Head:** Binocular, 45° inclined.

**Dioptic adjustment:** Both eyepieces.

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

**Objective:** Achromatic 1x-3x 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. Color temperature: 6,300 K.

**Order code:**
- SFX-34-EU With EU plug
- SFX-34-UK With UK plug
- SFX-34-US With US plug

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. 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.

**Dioptic 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. Color temperature: 6,300 K. Multi-plug 100-240Vac/SVdc external power supply.
Cordless binocular stereomicroscope ideal for students, schools and amateurs to dissect and discover mainly biology and materials science in 3D, with turnable objective (1x-3x), FN 20 eyepieces, 360° rotating head, fixed arm with handle and 1 W LED transmitted / incident illumination with comfortable touch control and rechargeable batteries. 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 1x-3x 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. Color temperature: 6,300 K.

**Order code:**
- SFX-52-EU With EU plug
- SFX-52-UK With UK plug
- SFX-52-US With US plug

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Cordless binocular stereomicroscope ideal for students, schools and amateurs to dissect and discover mainly biology and materials science in 3D, with turnable objective (1x-2x-4x), FN 20 eyepieces, precision fixed arm with handle and 1 W LED transmitted / incident illumination with comfortable touch control and rechargeable batteries. 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 1x-2x-4x with anti-fungus treatment.

**Working distance:** 60 mm.

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

**Focusing:** Rack and pinion focusing mechanism.

**Illumination:** 1 W LED swiveling incident and transmitted, with touch brightness control, rechargeable batteries. Color temperature: 6,300 K. Multi-plug 100-240Vac/6Vdc external power supply.
**SFX-91D**

Cordless digital binocular stereomicroscope ideal for students, schools and amateurs to dissect and discover mainly biology and materials science in 3D, with turnable objective (1x-2x-4x), FN 20 eyepieces, precision fixed arm with handle and 1 W LED transmitted / incident illumination with comfortable touch control and rechargeable batteries. Slim and easy to carry, it is equipped with long lasting LED illumination to provide over 20 years of use.

**Head:** Binocular with integrated 3 MP camera, 45° inclined.

**Dioptric adjustment:** Both eyepieces.

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

**Objective:** Achromatic 1x-2x-4x with anti-fungus treatment.

**Working distance:** 60 mm.

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

**Focusing:** Rack and pinion focusing mechanism.

**Illumination:** 1 W LED swiveling incident and transmitted, with touch brightness control, rechargeable batteries. Color temperature: 6,300 K. Multi-plug 100-240Vac/6Vdc external power supply.

**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.
## MS/SFX Series - Comparison Chart

<table>
<thead>
<tr>
<th>Model</th>
<th>Head</th>
<th>Eyepieces</th>
<th>Objective</th>
<th>Working Distance</th>
<th>Stand</th>
<th>Illumination</th>
</tr>
</thead>
<tbody>
<tr>
<td>MS-1</td>
<td></td>
<td>WF 10x/15.5</td>
<td>10x fixed</td>
<td>6 mm</td>
<td>Fixed with focus</td>
<td>0.3 W LED penlight. Powered by AAA batteries (not included)</td>
</tr>
<tr>
<td>MS-2</td>
<td>Monocular, 45° inclined, 360° rotating</td>
<td>WF 10x/16</td>
<td>2x fixed</td>
<td>57 mm</td>
<td>Pillar with focus</td>
<td>-</td>
</tr>
<tr>
<td>STX</td>
<td>Binocular, vertical, fixed</td>
<td>WF 10x/16</td>
<td>2x fixed</td>
<td>67 mm</td>
<td>Fixed with focus</td>
<td>Incident: 0.1 W LED. Powerd by 2 AA batteries (not included)</td>
</tr>
<tr>
<td>ST-30FX</td>
<td>Binocular, 45° inclined, fixed</td>
<td>WF 10x/20</td>
<td>2x – 4x selectable</td>
<td>57 mm</td>
<td>Pillar with focus</td>
<td>Incident: 1 W LED Transmitted: 1 W LED</td>
</tr>
<tr>
<td>SFX-31</td>
<td>Binocular, 45° inclined, fixed</td>
<td>WF 10x/20</td>
<td>2x – 4x selectable</td>
<td>57 mm</td>
<td>Pillar with focus</td>
<td>Incident: 1 W LED Transmitted: 1 W LED Dial brightness control Rechargeable batteries</td>
</tr>
<tr>
<td>SFX-32</td>
<td>Binocular, 45° inclined, fixed</td>
<td>WF 10x/20</td>
<td>1x – 3x selectable</td>
<td>57 mm</td>
<td>Pillar with focus</td>
<td>Incident: 1 W LED Transmitted: 1 W LED Dial brightness control Rechargeable batteries</td>
</tr>
<tr>
<td>SFX-33</td>
<td>Binocular, 45° inclined, fixed</td>
<td>WF 10x/20</td>
<td>2x – 4x selectable</td>
<td>57 mm</td>
<td>Fixed with focus and handle</td>
<td>Incident: 1 W LED Transmitted: 1 W LED Touch brightness control Rechargeable batteries</td>
</tr>
<tr>
<td>SFX-34</td>
<td>Binocular, 45° inclined, fixed</td>
<td>WF 10x/20</td>
<td>1x – 3x selectable</td>
<td>57 mm</td>
<td>Fixed with focus and handle</td>
<td>Incident: 1 W LED Transmitted: 1 W LED Touch brightness control Rechargeable batteries</td>
</tr>
<tr>
<td>SFX-51</td>
<td>Binocular, 45° inclined, 360° rotating</td>
<td>WF 10x/20</td>
<td>2x – 4x selectable</td>
<td>76 mm</td>
<td>Fixed with focus and handle</td>
<td>Incident: 1 W LED Transmitted: 1 W LED Touch brightness control Rechargeable batteries</td>
</tr>
<tr>
<td>SFX-52</td>
<td>Binocular, 45° inclined, 360° rotating</td>
<td>WF 10x/20</td>
<td>1x – 3x selectable</td>
<td>76 mm</td>
<td>Fixed with focus and handle</td>
<td>Incident: 1 W LED Transmitted: 1 W LED Touch brightness control Rechargeable batteries</td>
</tr>
<tr>
<td>SFX-91</td>
<td>Binocular, 45° inclined, fixed</td>
<td>WF 10x/20</td>
<td>1x – 2x – 4x selectable</td>
<td>60 mm</td>
<td>High-grade fixed with focus and handle</td>
<td>Incident: 1 W LED Transmitted: 1 W LED Touch brightness control Rechargeable batteries</td>
</tr>
<tr>
<td>SFX-91D</td>
<td>Binocular, 45° inclined, 3 MP integrated camera</td>
<td>WF 10x/20</td>
<td>1x – 2x – 4x selectable</td>
<td>60 mm</td>
<td>High-grade fixed with focus and handle</td>
<td>Incident: 1 W LED Transmitted: 1 W LED Touch brightness control Rechargeable batteries</td>
</tr>
<tr>
<td>ST-50Led</td>
<td>Binocular, 45° inclined, fixed</td>
<td>WF 10x/20</td>
<td>2x fixed</td>
<td>119 mm</td>
<td>Overhanging with focus</td>
<td>Incident: 1 W LED on flexible arm</td>
</tr>
</tbody>
</table>
# MS/SFX Series - Accessories

## ACCESSORIES FOR STX, MS-1 AND MS-2

<table>
<thead>
<tr>
<th>Stage</th>
<th>Item Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ST-015</td>
<td>Glass object-plate, 60mm diameter (only for MS-2)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Miscellaneous</th>
<th>Item Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DC-001</td>
<td>Plastic dust cover, small, 340x400 mm</td>
</tr>
<tr>
<td>M-899</td>
<td>Pen illuminator (only for MS-1)</td>
</tr>
<tr>
<td>15104</td>
<td>Cleaning kit</td>
</tr>
</tbody>
</table>

## ACCESSORIES FOR SFX SERIES & ST-50Led

### Eyecups & Eyepieces

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ST-001</td>
<td>WF5x/22 eyepieces (pair), 30.5mm diameter (except for ST-50Led)</td>
</tr>
<tr>
<td>ST-002</td>
<td>WF10x/20 eyepieces (pair)</td>
</tr>
<tr>
<td>ST-003</td>
<td>WF15x/15 eyepieces (pair)</td>
</tr>
<tr>
<td>ST-004</td>
<td>WF20x/15 eyepieces (pair)</td>
</tr>
<tr>
<td>ST-005</td>
<td>WF10x/20 micrometric eyepiece</td>
</tr>
<tr>
<td>ST-011</td>
<td>WF5x/22 eyepieces (pair), 30mm diameter (only for ST-50Led)</td>
</tr>
</tbody>
</table>

### Objectives

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ST-025</td>
<td>1x objective (only for ST-50Led)</td>
</tr>
<tr>
<td>ST-026</td>
<td>3.5x objective (only for ST-50Led)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Stage</th>
<th>Item Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ST-014</td>
<td>Glass object-plate, 95mm diameter (only for ST-30FX)</td>
</tr>
<tr>
<td>ST-015</td>
<td>Glass object-plate, 60mm diameter (except for ST-30FX &amp; ST-50Led)</td>
</tr>
<tr>
<td>ST-011</td>
<td>White/black object-plate, 60mm diameter (except for ST-30FX &amp; ST-50Led)</td>
</tr>
<tr>
<td>ST-012</td>
<td>White/black object-plate, 95mm diameter (only for ST-30FX)</td>
</tr>
</tbody>
</table>

### Camera Adapters

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>M-114</td>
<td>0.5x C-Mount projection lens</td>
</tr>
<tr>
<td>M-115</td>
<td>0.35x C-Mount projection lens</td>
</tr>
<tr>
<td>M-118</td>
<td>0.75x C-Mount projection lens</td>
</tr>
</tbody>
</table>

### Miscellaneous

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>M-113.1</td>
<td>Ring adapter, 30mm (for monocular and binocular microscopes) (except ST-50Led)</td>
</tr>
<tr>
<td>M-113.2</td>
<td>Ring adapter, 30.5mm (for monocular and binocular microscopes) (only for ST-50Led)</td>
</tr>
<tr>
<td>DC-001</td>
<td>Plastic dust cover, small, 340x400 mm (except for ST-50Led)</td>
</tr>
<tr>
<td>DC-002</td>
<td>Plastic dust cover, medium, 490x490 mm (only for ST-50Led)</td>
</tr>
<tr>
<td>M-005</td>
<td>Micrometric slide, 26x76mm, with 2 scales (1mm/100 &amp; 10mm/100)</td>
</tr>
<tr>
<td>15104</td>
<td>Cleaning kit</td>
</tr>
<tr>
<td>ST-041</td>
<td>Sample clip (only for ST-30FX)</td>
</tr>
</tbody>
</table>

## How to connect the cameras to our microscopes.

Please refer to the Adapter reference list on Digital section.

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

Stereomicroscopes For Higher Education & Laboratory
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

PROFESSIONAL FEATURES FOR... WELL, EVERYONE
» Level up skills and become a professional user
» 3D Greenough view for high resoluted 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

Extremely Versatile Cordless Stereo & Stereozoom Microscopes
Legend
1. Aluminum - SLX-1 and 4x objective.
2. Component worked on lathe - SLX-2 and 3x zoom.
3. Wasp - SLX-3 and 4x zoom.
4. Fly, detail - SLX-2 and 4.5x zoom.
5. Rock - SLX-2 - 1.5x zoom.
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 ergonomy 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.
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-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.

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.

ST-091 - Additional lens 0.75x
ST-085.1 - Additional lens 0.5x (w.d. 165mm) with SZ-EXT
ST-040.1 - Darkfield condenser, 100mm diameter
SLX Series - Range

SLX-1

Cordless binocular stereomicroscope ideal for industrial purposes and students/amateurs to dissect and discover mainly biology and materials science in 3D, with turnable objective (2x-4x), FN 21 high eyepoint eyepieces, precision fixed arm with handle and the latest technology of EcoLED™ illumination plus rechargeable batteries. 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:** Left eyepiece.

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

**Objective:** Achromatic 2x-4x 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. Color temperature: 6,300 K. Multi-plug 100-240Vac/5Vdc external power supply.

---

SLX-2

Cordless binocular 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. 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/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. Color temperature: 6,300 K. Multi-plug 100-240Vac/5Vdc external power supply.
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. 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.
- **Dioptic 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. Color temperature: 6,300 K. Multi-plug 100-240Vac/5Vdc external power supply.

**SLX Series - Comparison Chart**

<table>
<thead>
<tr>
<th>Model</th>
<th>Head</th>
<th>Eyepieces</th>
<th>Objective</th>
<th>Working Distance</th>
<th>Stand</th>
<th>Illumination</th>
</tr>
</thead>
<tbody>
<tr>
<td>SLX-1</td>
<td>Binocular</td>
<td>WF 10x/21</td>
<td>2x – 4x selectable</td>
<td>100 mm</td>
<td>High-grade; precision fixed with handle and focus</td>
<td>EcoLED™ swiveling incident and transmitted with brightness control, rechargeable batteries</td>
</tr>
<tr>
<td>SLX-2</td>
<td>Binocular</td>
<td>WF 10x/21</td>
<td>0.7x...4.5x zoom</td>
<td>100 mm</td>
<td>High-grade; precision fixed with handle and focus</td>
<td>EcoLED™ swiveling incident and transmitted with brightness control, rechargeable batteries</td>
</tr>
<tr>
<td>SLX-3</td>
<td>Trinocular (50/50)</td>
<td>WF 10x/21</td>
<td>0.7x...4.5x zoom</td>
<td>100 mm</td>
<td>High-grade; precision fixed with handle and focus</td>
<td>EcoLED™ swiveling incident and transmitted with brightness control, rechargeable batteries</td>
</tr>
</tbody>
</table>

**Optical performance SLX-1**

<table>
<thead>
<tr>
<th>Eyepiece</th>
<th>10x (ST-081)</th>
<th>15x (ST-082)</th>
<th>20x (ST-083)</th>
<th>10x (ST-084)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Field number (mm)</td>
<td>21</td>
<td>15</td>
<td>10</td>
<td>21</td>
</tr>
<tr>
<td>Additional lens</td>
<td>Total Magnification</td>
<td>Field of View (mm)</td>
<td>Total Magnification</td>
<td>Field of View (mm)</td>
</tr>
<tr>
<td>1x</td>
<td>20x - 40x</td>
<td>10.50 - 5.25</td>
<td>30x - 60x</td>
<td>7.50 - 3.75</td>
</tr>
</tbody>
</table>

**Optical performance SLX-2 - SLX-3**

<table>
<thead>
<tr>
<th>Eyepiece</th>
<th>10x (ST-081)</th>
<th>15x (ST-082)</th>
<th>20x (ST-083)</th>
<th>10x (ST-084)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Field number (mm)</td>
<td>21</td>
<td>15</td>
<td>10</td>
<td>21</td>
</tr>
<tr>
<td>Additional lens</td>
<td>Total Magnification</td>
<td>Field of View (mm)</td>
<td>Total Magnification</td>
<td>Field of View (mm)</td>
</tr>
<tr>
<td>0.5x</td>
<td>3.5x - 22.5x</td>
<td>60.00 - 9.33</td>
<td>5.25x - 33.75x</td>
<td>42.86 - 6.67</td>
</tr>
<tr>
<td>0.75x</td>
<td>5.25x - 33.75x</td>
<td>40.00 - 6.22</td>
<td>7.875x - 50.625x</td>
<td>28.57 - 4.44</td>
</tr>
<tr>
<td>1x</td>
<td>7x - 45x</td>
<td>30.00 - 4.67</td>
<td>10.5x - 67.5x</td>
<td>21.43 - 3.33</td>
</tr>
<tr>
<td>1.5x</td>
<td>10.5x - 67.5x</td>
<td>20.00 - 3.11</td>
<td>15.75x - 101.25x</td>
<td>14.29 - 2.22</td>
</tr>
</tbody>
</table>
# SLX Series - Accessories

## Eyecups & Eyepieces
- **ST-036** Eyecups (pair), curved
- **ST-081** EW10x/21 eyepieces (pair), high eyepoint, with rubber cup
- **ST-082** WF15x/15 eyepieces (pair), high eyepoint
- **ST-083** WF20x/10 eyepieces (pair), high eyepoint
- **ST-084** WF10x/21 micrometric eyepiece, high eyepoint, with rubber cup

## Additional Lenses
- **ST-085.1** Additional lens 0.5x (w.d. 165mm) with SZ-EXT (only for SLX-2 & SLX-3)
- **ST-091** Additional lens 0.75x (w.d. 105mm) (only for SLX-2 & SLX-3)
- **ST-086.1** Additional lens 1.5x (w.d. 45mm) with compensating disc (only for SLX-2 & SLX-3)

## Stages
- **ST-100.1** Hand moving stage, 100mm diameter
- **ST-110.1** Movable stage, coaxial knobs, 100mm diameter
- **ST-111.1** Moving stage, micrometric screws, 100mm diameter
- **ST-666.1-EU** Applicable heating stage (stereomicroscopes, 100mm diameter), EU
- **ST-666.1-UK** Applicable heating stage (stereomicroscopes, 100mm diameter), UK
- **ST-666.1-US** Applicable heating stage (stereomicroscopes, 100mm diameter), US
- **ST-666.1-SW** Applicable heating stage (stereomicroscopes, 100mm diameter), CH

## Condensers & Filters
- **ST-040.1** Darkfield condenser, 100mm diameter
- **ST-088.1** Polarising set (filters and rotating stage), 100mm diameter

## Camera Adapters
- **M-113.1** Ring adapter, 30mm (for monocular and binocular microscopes)
- **M-115** 0.35x C-Mount projection lens
- **M-114** 0.35x C-Mount projection lens
- **M-118** 0.75x C-Mount projection lens
- **M-173** C-Mount projection lens for APS-C/full frame reflex cameras (trino)
- **M-699** Universal adapter for C-Mount projection lens (trino)
- **ST-090** 0.35x focusable C-Mount adapter (stereomicroscopes)
- **ST-090.1** 0.5x focusable C-Mount adapter (stereomicroscopes)
- **ST-090.2** 0.65x focusable C-Mount adapter (stereomicroscopes)
- **M-620.3** 1x focusable C-Mount adapter (biological & stereomicroscopes)

## Miscellaneous
- **15104** Cleaning kit
  - It cleans glass quickly and effectively, without leaving residue or odor.
  - Ideal for precision lens or prism cleaning.
- **DC-002** Plastic dust cover, medium, 490(l)x490(h) mm
- **M-005** Micrometric slide, 26x76mm, with 2 scales (1mm/100 & 10mm/100)
- **ST-041** Sample clip
- **ST-042** White/black object-plate, 100mm diameter
- **ST-043** Glass object-plate, 100mm diameter
- **ST-092** Protective glass for stereohead
- **VP-SLX** IQ/OQ/PQ manual for SLX series

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

Please refer to the Adapter reference list on Digital section.