euromex microscopes holland

bScope

bscope

HIGHLIGHTS

- **Medical device class I – EU MDR 2017-745**
- **Microscopes for research and laboratories**
- **Monocular, binocular and trinocular models**
- **Digital models available**
- **HWF 10x/20 mm eyepieces**
- **Reversed ball-beared quadruple or quintuple nosepiece with slot for polarization filter**
- **E-plan, Plan, E-plan IOS and Plan IOS objectives**
- **E-plan Phase, E-plan Phase IOS, Plan Phase IOS objectives**
- **Rackless integrated X-Y mechanical stage**
- **3 W NeoLED™ adjustable illumination system**
- **Integrated carrying grip**
- **Cable Storage System**
- **10 Years warranty**

BS.1152-PLi

MD

MONOCULAR MODEL BS.1151-XXX	385 (h) x 195 (w) x 235 (d) | 6.3 kg
BINOCULAR MODEL BS.1152-XXX	409 (h) x 195 (w) x 235 (d) | 6.5 kg
TRINOCULAR MODEL BS.1153-XXX	459 (h) x 195 (w) x 235 (d) | 6.6 kg

TECHNICAL SPECIFICATIONS

EYEPIECE(S)

High wide field HWF 10x/20 mm secured eyepiece(s) with 20 mm field of view. The eyepiece of monocular models is supplied with pointer

HEAD

- The bScope is available with a monocular head (45° inclined Ø 23.2 mm tube) or with a Siedentopf type head, 360° rotatable, with 30° inclined Ø 23.2 mm tubes
- Binocular and trinocular models are equipped with a diopter ± 5 adjustment on left eyepiece
- The interpupillary distance is adjustable between 48 to 76 mm
- The trinocular head comes with a Ø 23.2 mm photo port, ensuring maximum flexibility. The prisms inside the heads are designed to minimize the light absorption for perfect digital imaging
- A unique rotating system allows the ergonomic positioning of both tubes in a high (431 mm) and low (377 mm) position. only for IOS models
- Details on models with an integrated camera can be found on page 4

NOSEPIECE

Revolving and reversed ball-bearing quadruple or quintuple nosepiece

OBJECTIVES

The state-of-the-art production techniques and multi layer coatings used for the manufacturing of the bScope objectives enable the bScope to be used for the most demanding applications. World class spherical aberration correction and modern CNC and assembly technology ensure the perfect centering of the objectives

- Brightfield models: E-Plan, Plan, E-plan IOS infinity corrected, Plan IOS infinity corrected 4x/0.10, 10x/0.25, 20x/0.40, S40x/0.65, S60x/0.85 and S100x/1.25 oil immersion objectives
- Phase contrast models: E-plan Phase, E-plan Phase IOS infinity corrected, Plan Phase IOS infinity corrected 10x/0.25, 20x/0.40, S40x/0.65 and S100x/1.25 oil immersion objectives

All S40x, S60x and S100x oil immersion objectives are spring loaded. All optics are anti-fungus treated and anti-reflection coated for maximum light throughput

FOCUSING

Double coaxial, low-positioned coarse and fine adjustments with 180 graduations. Precision 1.11 µm, 200 µm per rotation, total travel range approximately 19 mm. Supplied with an adjustable rack stop to prevent damage to sample and objectives. The coarse adjustment is equipped with friction control

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Date: 2021.09.30 15:02:47 EEST
Reason: MoldSign Signature
Location: Moldova

STAGE

- The bScope is equipped with a scratch resistant 152/197 x 131 mm stage with integrated 75 x 36 mm X-Y rackless mechanical stage, Vernier scale, soft-close removable specimen holder
- The rackless stage has no protruding parts, enables more smooth movements and is safer in use. Low-positioned X-Y control knobs prevent fatique during long working sessions. The bScope can be equipped with a heating stage which can be set up to 50° Celsius by a PID temperature controller. Only available with newly purchased microscopes

CONDENSER FOR BRIGHTFIELD

The standard in height adjustable Abbe N.A. 1.25 condenser for brightfield comes with an iris diaphragm and swing-out filter holder

ZERNIKE CONDENSER FOR PHASE CONTRAST

The in height adjustable Zernike NA. 1.25 phase contrast disc condenser comes with phase annuli for 10/20/S40x and S100x phase contrast objectives, an iris diaphragm, a swing-out filter holder and also a BF position for bright field contrast. Phase contrast objectives in either EPL-PH, EPL-PHi or PL-PHi phase contrast versions. Supplied with alignment telescope and green filter

CONDENSER WITH SLIDER(S) FOR PHASE CONTRAST

The in height adjustable NA. 1.25 simple phase contrast condenser has a free slot for either a slider for 10/S40x phase contrast objectives or a slider for 20/S100x phase contrast objectives. The condenser has an iris diaphragm and filter holder. The condenser also includes a BF position for bright field contrast. Phase contrast objectives in either EPL-PH, EPL-PHi or PL-PHi versions. Supplied with alignment telescope and green filter

CONDENSER FOR DARKFIELD

A state-of-the-art condenser equipped with reflective cardioid mirrors, with an integrated high powered 5 W LED light source. Together with a S100x objective with built-in iris diaphragm this forms a 1000x magnification darkfield solution. The power supply of the 5 W LED light source is built in the microscope. The darkfield condenser can easily be exchanged for a brightfield condenser which is also included

POLARISATION

The bScope has an integrated slot above the nosepiece for an optional polarization filter

ILLUMINATION

The microscopes of the bScope are equipped with a 3 W NeoLED adjustable illumination system for increased light output and a 100-240 Vac integrated power supply. On request, rechargeable batteries are also available

NEOLED™ ILLUMINATION

The 3 W adjustable Köhler NeoLED diascopic illumination is powered by an internal 100-240 V power supply making it suitable for worldwide use. The innovative NeoLED design offers larger apertures, allowing the optical system of the bScope microscope to produce images at higher resolutions, very close to the theoretical diffraction limit of the optics. Other benefits of the NeoLED is the low energy consumption, no heating and a long operating lifetime

KÖHLER ILLUMINATION

A Köhler illumination ensures for all infinity corrected IOS models the highest possible contrast and the maximum achievable resolving power. It generates a uniform illumination of the sample and eliminates all interference from dust on lenses and side glare of the light source

The Köhler illumination is optional for non-IOS models

CORDLESS USE

The optional rechargeable batteries turn the bScope into a cordless system

CSS – CABLE STORAGE SYSTEM

Allows users to easily stow away excess cable length into the back of the instrument during operation and to roll up the power cable for easy storage

CARRYING GRIP

The integrated carrying grip at the back of the microscope ensures safe transportation of the microscope

ANTI-THEFT SLOT

At the back of the microscope a Kensington Security Slot is placed, which can be used to secure the instrument from theft

PACKAGE CONTENT

Smart Styrofoam packaging ensures a low environmental footprint while maintaining maximum safety during transport. Supplied with power cord, dust cover, tools, a spare fuse, white filter, user manual and 5 ml immersion oil

Phase contrast models are supplied with green filter and alignment telescope.
An optional aluminum case can be supplied

BSCOPE FOR BRIGHTFIELD

MODELS	Mono	Bino	Trino	HWF 10x/20 mm eyepieces	Quadruple nosepiece Plan 4/10/S40/S100x	Quadruple nosepiece E-plan 4/10/S40/S100x	Quadruple nosepiece Plan IOS 4/10/S40/S100x	Quintuple nosepiece E-plan IOS 4/10/S40/S100x	Quintuple nosepiece Plan IOS 4/10/S40/S100x	Köhler NeoLED™	NeoLED™	2-position swiveling ergo head
BS.1151-EPL	•			•		•					•	
BS.1152-EPL		•		•		•					•	
BS.1153-EPL			•	•		•					•	
BS.1152-EPLi		•		•				•		•		•
BS.1153-EPLi			•	•				•		•		•
BS.1151-PL	•			•	•							
BS.1152-PLi		•		•					•	•		•
BS.1153-PLi			•	•					•	•		•
BS.1152-PLi/4N		•		•			•			•		•
BS.1153-PLi/4N			•	•			•			•		•

Rechargeable batteries is optional
All models are equipped with a 152/197 x 131 mm stage with integrated 75 x 36 mm X-Y rackless mechanical stage
All models are medical devices class I

BSCOPE FOR PHASE CONTRAST

MODELS	Bino	Trino	HWF 10x/20 mm eyepieces	Quadruple nosepiece E-plan Phase 10/20/S40 S100x	Quintuple nosepiece E-plan Phase IOS 10/20/ S40 S100x	Quintuple nosepiece Plan Phase IOS 10/20/ S40 S100x	Köhler NeoLED™	NeoLED™	2-position swivel-ling ergo head
BS.1152-EPLPH	•		•	•				•	
BS.1153-EPLPH		•	•	•				•	
BS.1152-EPLPHi	•		•		•		•		•
BS.1153-EPLPHi		•	•		•		•		•
BS.1152-PLPHi	•		•			•	•		•
BS.1153-PLPHi		•	•			•	•		•

Rechargeable batteries is optional
All models are equipped with a 152/197 x 131 mm stage with integrated 75 x 36 mm X-Y rackless mechanical stage
All models are medical device class I

BSCOPE FOR DARKFIELD

MODEL	Trino	HWF 10x/20 mm eyepieces	Quadruple nosepiece E-plan Phase 10/20/S40 S100x	Oil immersion Cardioïd condenser	5W LED for darkfield	NeoLED™	Rechargeable batteries
BS.1153-EPL/DF	•	•	•	•	•	•	o

S100x oil immersion objective with built-in iris diaphragm. Model BS.1153-EPL/DF can optionally be supplied with three AA rechargeable batteries for bright field applications
Rechargeable batteries is optional

● *BS.1151-EPL*

● *BS.1153-PLPHi*

● *BS.1152-PLi*

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bScope
digital

HIGHLIGHTS

- Binocular model
- Integrated 5.0 MP CMOS color USB.2 camera
- 2592 x 1944 pixels
- 7 frames per second (2592 x 1944 pixels)
- 27 frames per second (1280 x 960 pixels)
- ImageFocus Alpha software
- 10 Years warranty (2 years on camera)

● *BS.1157-PLi*

BS.1157-EPLi
409 (h) x 195 (w) x 235 (d) | 7.1 kg

TECHNICAL SPECIFICATIONS

CAMERA

The digital bScope microscopes are equipped with a 5.0 MP 1/2.5 inch CMOS USB-2.0 camera, 24 bits color depth, 7 frames per second (2592 x 1944 pixels) or 27 frames per second (1280 x 960 pixels). Dynamic range is 76 db and signal/noise ratio 41 db. Supplied with ImageFocus Alpha software, USB-2.0 cable and a micrometer 1mm/100 calibration slide

SOFTWARE

The capture and analysis ImageFocus Alpha software allows to save images in .jpg, .tif, .bmp or .dicom formats as well as .avi format videos. Measurements and annotations can be done on live or captured images. Compatible with Windows 7, 8 and 10, both 32 and 64 bits configurations. A Mac OS version is also available. Free updates can be downloaded from our website

Further specifications are identical to the analog bScope® models

MODELS	Binocular head	HWF 10x/20 mm eyepieces	Quintuple nosepiece E-plan IOS 4/10/S40/S100x	Quintuple nosepiece plan IOS 4/10/S40/S100x	Quintuple nosepiece E-plan phase IOS 10/20/S40/S100x	Quintuple nosepiece plan phase IOS 10/20/S40/S100x	Köhler NeoLED™
BS.1157-EPLi	•	•	•				•
BS.1157-PLi	•	•		•			•
BS.1157-EPLPHi	•	•	•		•		•
BS.1157-PLPHi	•	•		•		•	•

All models can optionally be supplied with three AA rechargeable batteries

ACCESSORIES AND SPARE PARTS

EYEPIECES

BS.6010 HWF 10x/20 mm eyepiece, Ø 23.2 mm tube
BS.6010-P HWF 10x/20 mm eyepiece with pointer, Ø 23.2 mm tube
BS.6010-C HWF 10x/20 mm eyepiece with crosshairs, Ø 23.2 mm tube
BS.6010-CM HWF 10x/20 mm eyepiece with 10/100 micrometer and crosshairs
BS.6012 WF 12.5x/14 mm eyepiece
BS.6015 WF 15x/11 mm eyepiece
BS.6020 WF 20x/11 mm eyepiece
BS.6099 Pair of eyecups

OBJECTIVES

BS.7104 E-plan EPL 4x/0.10 objective. WD 37.0 mm
BS.7110 E-plan EPL 10x/0.25 objective. WD 6.61 mm
BS.7120 E-plan EPL 20x/0.40 objective. WD 1.85 mm
BS.7140 E-plan EPL S40x/0.65 objective. WD 0.64 mm
BS.7160 E-plan EPL S60x/0.85 objective. WD 0.20 mm
BS.7100 E-plan EPL S100x/1.25 oil immersion objective. WD 0.19 mm

BS.7204 Plan PL 4x/0.10 objective. Working distance 17.9 mm
BS.7210 Plan PL 10x/0.25 objective. WD 8.8 mm
BS.7220 Plan PL 20x/0.40 objective. WD 8.6 mm
BS.7240 Plan PL S40x/0.65 objective. WD 0.56 mm
BS.7260 Plan PL S60x/0.85 objective. WD 0.25 mm
BS.7200 Plan PL S100x/1.25 oil immersion objective. WD 0.33 mm

BS.7510 E-Plan Phase EPLPH 10x/0.25 objective. WD 6.61 mm
BS.7520 E-Plan Phase EPLPH 20x/0.40 objective. WD 1.85 mm
BS.7540 E-Plan Phase EPLPH S40x/0.65 objective. WD 0.64 mm
BS.7500 E-Plan Phase EPLPH S100x/1.25 oil immersion objective. WD 0.19 mm

BS.8204 E-plan EPLi 4x/0.10 infinity corrected IOS objective. WD 18.9 mm
BS.8210 E-plan EPLi 10x/0.25 infinity corrected IOS objective. WD 5.95 mm
BS.8220 E-plan EPLi 20x/0.40 infinity corrected IOS objective. WD 2.61 mm
BS.8240 E-plan EPLi S40x/0.65 infinity corrected IOS objective. WD 0.78 mm
BS.8200 E-plan EPLi S100x/1.25 oil immersion infinity corrected IOS objective. WD 0.36 mm

BS.8404 Plan PLi 4x/0.10 infinity corrected IOS objective. WD 21.0 mm
BS.8410 Plan PLi 10x/0.25 infinity corrected IOS objective. WD 5.0 mm
BS.8420 Plan PLi 20x/0.40 infinity corrected IOS objective. WD 8.8 mm
BS.8440 Plan PLi S40x/0.65 infinity corrected IOS objective. WD 0.66 mm
BS.8460 Plan PLi S60x/0.85 infinity corrected IOS objective. WD 0.46 mm
BS.8400 Plan PLi S100x/1.25 oil immersion infinity corrected IOS objective. WD 0.36 mm

BS.8510 E-Plan Phase EPLPHi 10x/0.25 infinity corrected IOS objective. WD 5.95 mm
BS.8520 E-Plan Phase EPLPHi 20x/0.40 infinity corrected IOS objective. WD 2.61 mm
BS.8540 E-Plan Phase EPLPHi S40x/0.65 infinity corrected IOS objective. WD 0.78 mm
BS.8500 E-Plan Phase EPLPHi S100x/1.25 oil immersion infinity corrected IOS objective. WD 0.36 mm

BS.8710 Plan Phase PLPHi 10x/0.25 infinity corrected IOS objective. WD 5.00 mm
BS.8720 Plan Phase PLPHi 20x/0.40 infinity corrected IOS objective. WD 8.80 mm
BS.8740 Plan Phase PLPHi S40x/0.65 infinity corrected IOS objective. WD 0.66 mm
BS.8700 Plan Phase PLPHi S100x/1.25 oil immersion infinity corrected IOS objective. WD 0.36 mm

CONDENSERS AND ACCESSORIES

BS.9102 Abbe condenser 1,25 NA with slot for darkfield and phase contrast sliders. Without darkfield slider and without phase contrast slider
BS.9170 Darkfield stop for BS.9102 condenser
BS.9105 Swing-out Abbe condenser 0.9/1.25 NA

PHASE CONTRAST ACCESSORIES

BS.9118 Zernike phase contrast kit with E-plan EPLPH 10/20/S40 and S100 oil phase contrast objectives, Zernike rotating condenser, telescope and green filter
BS.9120 Zernike phase contrast kit with E-plan EPLPHi 10/20/S40 and S100 oil phase contrast IOS infinity corrected objectives, Zernike rotating condenser, telescope and green filter
BS.9123 Zernike phase contrast kit with plan PLPH 10/20/S40 and S100 oil phase contrast objectives, Zernike rotating condenser, telescope and green filter
BS.9126 Zernike phase contrast kit with plan PLPHi 10/20/S40 and S100 oil phase contrast IOS infinity corrected objectives, Zernike rotating condenser, telescope and green filter
BS.9148 Alignment telescope for bScope IOS version with 30 mm tubes
BS.9149 Alignment telescope for bScope non IOS version with 23.2 mm tubes
BS.9156 Phase contrast kit with Abbe condenser with slot for slider. E-plan EPLPH 10/S40x phase contrast objectives, slider with 10 and 40x annuli, telescope and green filter
BS.9157 Phase contrast kit with Abbe condenser with slot for slider. E-plan EPLPH 20/S100x phase contrast objectives, slider with 20 and 100x annuli, telescope and green filter
BS.9158 Phase contrast kit with Abbe condenser with slot for slider. E-plan EPLPH i 10/S40x phase contrast infinity corrected objectives, slider with 10 and 40x annuli, telescope and green filter

BS.9159 Phase contrast kit with Abbe condenser with slot for slider. E-plan EPLPHi 20/S100x phase contrast infinity corrected objectives, slider with 20 and 100x annuli, telescope and green filter

BS.9162 Phase contrast kit with Abbe condenser with slot for slider. Plan PLPHi 10/S40x phase contrast infinity corrected objectives, slider with 10 and 40x annuli, telescope and green filter

BS.9163 Phase contrast kit with Abbe condenser with slot for slider. Plan PLPHi 20/S100x phase contrast infinity corrected objectives, slider with 20 and 100x annuli, telescope and green filter

POLARIZATION ATTACHMENTS

BS.9647 Polarization polarizer 16 mm diameter for slider under bScope head

BS.9651 Polarization attachment for lamphouse of bScope with 360° scale

BS.9660 Polarization kit: analyzer under head and polarizer on lamphouse

CAMERA ACCESSORIES

AE.5130 Universal Ø 23.2 mm tube adapter with built-in 2x lens for SLR photo camera with APS-C sensor. Needs T2 adapter

AE.5025 T2 ring for Nikon D SLR digital camera

AE.5040 T2 ring for Canon EOS SLR digital camera

MISCELLANEOUS

BS.9880 Köhler attachment for bScope

BS.9900 Aluminum transport case for bScope

AE.9919 Nylon microscope bag XL, 58 (h) x 32 (w) x 24 (d)

AE.9916 Dust cover XL

BS.9993 NeoLED™ replacement unit

AE.1370 Set rechargeable batteries

DISPOSABLES

PB.5155 Microscope slides 76 x 26 mm, ground edges, 50 pieces

PB.5157-W Microscope slides 76 x 26 mm, ground edges and frosted side white color, 50 pieces per pack

PB.5157-B Microscope slides 76 x 26 mm, ground edges and frosted side blue color, 50 pieces per pack

PB.5165 Cover glasses 18 x 18 mm, 0.13-0.17 mm, 100 pieces

PB.5168 Cover glasses 22 x 22 mm, 0.13-0.17 mm, 100 pieces

PB.5245 Lens cleaning paper, 100 sheets per pack

PB.5255 Immersion oil, 25 ml. Refraction index n = 1.482

PB.5274 Iso propyl alcohol 99%, 200 ml

PB.5275 Cleaning kit: lens fluid, lint free lens tissue/paper, brush, air blower, cotton swabs

PB.5276 Microscope maintenance and servicing kit, 16pcs: cleaning brush, 6 pcs screwdriver set, air blower, 3 pcs Allen key, 1.5, 2, 2.5 mm, lens cleaning fluid 20 ml, cleaning cloth 140 x 140 mm, 100 pcs Lens tissue sheets, tube of maintenance grease, 10 ml bottle of oil, packed in a nice toolbox

● *AE.9916*

AE.9919 ●

● *BS.1153-PLi with camera*

bscope®

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user manual

INTRODUCTION

Thank you for purchasing the Euromex bScope.
The bScope series has been designed with all kinds of Life Sciences applications and great durability in mind. This resulted in a modern, robust and high-level microscope for advanced use, equipped with the best optical and mechanical components. Specific attention to production methods resulted also in an excellent price/performance ratio

Please read this manual carefully before using this product to ensure correct and safe usage

- The content of this manual is subject to change without notice
- The appearance of the actual product can differ from the models described in this manual
- Not all equipment mentioned in this manual has to be part of the set you have purchased
- All optics are anti-fungus treated and anti-reflection coated for maximum light throughput

Index

General safety instructions

Intended use – as a non-medical device

This microscope is intended for general observation of cells and tissues. The microscope is intended to be used with transmitted/reflected illumination and with the specimen fixed on a slide

Intended use as in vitro medical device class A – EU IVDE 2017-746

This microscope is intended for observation and diagnostics of cells and tissues at hospitals or by physicians and veterinaries in private practice in pathology, anatomy and cytology applications. The microscope is intended to be used with transmitted/reflected illumination and with the specimen fixed on a slide. Physicians and veterinaries use microscopes to identify the different types of cells and spot abnormal cells. This product helps in identifying and treating diseases

Prevention of biological and infectuous hazards

Infectious or bacterial or viral biohazard substances under observation may be a risk to the health of humans and other living organisms. Special precautions should be taken during in vitro medical procedures:

- Biological hazards: keep a logbook of all the biological substances or pathogenic microorganisms that were under observation with the microscope and show it to everybody before they use the microscope or before they do some maintenance work on the microscope! Agents can be bacterial, spores, enveloped or non-enveloped virus particles, fungi or protozoa
- Contamination hazard: the microscope and/or his accessories can come in contact with samples and substances that can be a hazard to humans and/or the environment! Therefore check the microscope and accessories on possible contaminations. Clean the microscope surfaces and its components as thoroughly as possible and when you identify a possible contamination, inform the local responsible person in your organisation
- Infection hazard: direct contact with the focusing knobs, stage adjustments, stage and eyepieces/tubes of the microscope can be a potential source of bacterial and/or viral infections. The risk can be limited by using personal eyeshades or eyepieces. You can also use personal protections such as operation gloves and/or safety goggles which can be frequently changed to minimize the risk
- Disinfectant hazards: before cleaning or disinfection check if the room is adequately ventilated. If not, wear respiratory protective equipment. Exposure to chemicals and aerosols can harm human eyes, skin and respiratory system. Do not inhale vapours. During disinfection, do not eat, drink or smoke. Used disinfectants must be disposed according to local or national regulations for health and safety

Disinfection and decontamination:

- exterior casing and mechanical surfaces must be wiped with a clean cloth dampened with a disinfectant
- soft plastic parts and rubber surfaces can be cleaned by gently wiping a clean cloth dampened with a disinfectant. Discoloration can occur if alcohol is used
- the front lens of eyepieces and objectives are sensitive to chemicals. We recommend not to use aggressive disinfectants but to use lens paper or a soft fibre-free tissue damped in cleaning solution. Cotton swabs can also be used. We recommend you use personal eyepieces without eyeshades in order to minimize risk

- never immerse or dip the eyepiece or objective into a disinfectant liquid! This will damage the component
- never use abrasive compounds or cleaners that can damage and scratch coating surfaces of optics
- Clean and disinfect all possible contaminated surfaces of the microscope or contaminated accessories properly before storing for future use. Disinfection procedures must be effective and appropriate
- Leave the disinfectant on the surface for the required exposure time, as specified by the manufacturer. If the disinfectant evaporates before the full exposure time, reapply disinfectant on the surface
- For disinfection against bacteria, use a 70% aqueous solution of isopropanol (isopropyl alcohol) and apply for at least 30 seconds. Against viruses, we recommend to refer to specific alcohol or non-alcohol based disinfection products for laboratories

Before returning a microscope for repair or maintenance through a Euromex dealer, a RMA (return authorization form) and a decontamination statement must be filled in! This document - available from Euromex for any reseller- must be shipped together at all times with the microscope

Reference documents:
World Health Organisation:
https://www.who.int/ihr/publications/biosafety-video-series/en/
Robert Koch Institut:
https://link.springer.com/content/pdf/10.1007/s00103-013-1863-6.pdf
US Centre for Disease Control and prevention
https://www.cdc.gov/infectioncontrol/guidelines/disinfection/index.html

Handle with care

- This product is a high quality optical instrument. Delicate handling is required
- Avoid subjecting it to sudden shocks and impacts
- Impacts, even small ones, can affect the precision of the objective

Handling the LED

Note: Always disconnect the power cord from your microscope before handling the LED bulb and power unit and allow the system approximately 35 minutes to cool down to avoid burns

- Never touch the LED with your bare hands
- Dirt or fingerprints will reduce the life span and can result in uneven illumination lowering the optical performance
- Use only Euromex original replacement LEDs
- Use of other products will cause malfunctions and void warranty
- During use of the microscope the power unit will get hot; never touch it while in operation and allow the system approximately 35 minutes to cool down to avoid burns

Model with rechargeable batteries

- Always disconnect the power cord from the microscope before you replace the rechargeable batteries
- The rechargeable batteries must not be throwed as normal trash but returned in special collection sites, according your local or national regulations
- Risk of explosion : when removing the rechargeable batteries, do not throw the batteries into fire or any other heating source
  Do not replace the rechargeable batteries with non-rechargeable batteries
- Avoid extreme environmental conditions and temperatures which could affect the rechargeable batteries and lead to fire, explosion or leakage of hazardous substances
- If the rechargeable batteries have leaked, avoid contact with skin, eyes and mucous membranes with the chemicals
  When in contact with the chemicals, flush immediately the affected areas with fresh water and seek medical attention

Dirt on the lenses

- Dirt on or inside the optical components, such as eyepieces, lenses, etc., affect the image quality of your system negatively
- Always try to prevent your microscope from getting dirty by using the dust cover, prevent leaving fingerprints on the lenses and clean the outer surface of the lens regularly
- Cleaning optical components is a delicate matter. Please read the cleaning instructions further on in this manual

Environment, storage and use

- This product is a precision instrument and it should be used in a proper environment for optimal use
- Install your product indoors on a stable, vibration free and level surface in order to prevent this instrument to fall thereby harming the operator
- Do not place the product in direct sunlight
- The ambient temperature should be between 5 to +40°C and humidity is maximum 80% at 31 degrees decreasing linearly to 50% at 40 degrees. Although the system is anti-mold treated, installing this product in a hot, humid location may still result in the formation of mold or condensation on lenses, impairing performance or causing malfunctions
- Never turn the right and left focus knobs in opposite directions at the same time or turn the coarse focus knob past its farthest point as this will damage this product
- Never use undue force when turning the knobs
- Make sure that the microscope system can dissipate its heat
- Keep the microscope approximately 15 cm free from walls and obstructions
- Never turn the microscope on when the dust cover is in place or when items are placed on the microscope
- Keep flammable fluids, fabric etc. well out of the way

Disconnect power

- Always disconnect your microscope from power before doing any maintenance, cleaning, assembling or replacing LEDs to prevent electric shocks
- Prevent contact with water and other fluids
- Never allow water or other fluids to come in contact with your microscope, this can cause short circuiting your device, causing malfunction and damage of your system

Moving and assembling

- The bScope microscope is a relatively heavy system, consider this when moving and installing the system
- Always lift the microscope by holding the main body and base of the microscope
- Never lift or move the microscope by its focusing knobs, stage or head
  When needed, move the microscope with two persons instead of one

Models

The bScope microscope is available in the following brightfield and phase contrast models. Please note: on www.euromex.com you can find the latest updates about bScope models and accessories

bScope for brightfield

MODELS	Mono	Bino	Trino	HWF 10x/20 mm eyepieces	Quadruple nosepiece Plan 4/10/S40/ S100x	Quadruple nosepiece E-plan 4/10/S40/ S100x	Quintuple nosepiece E-plan IOS 4/10/S40/ S100x	Quintuple nosepiece Plan IOS 4/10/S40/ S100x	Köhler NeoLED	Neo-LED™	2-position swiveling ergo head	Re-chargeable batteries
BS.1151-EPL	•			•		•				•		o
BS.1152-EPL		•		•		•				•		o
BS.1153-EPL			•	•		•				•		o
BS.1152-EPLi		•		•			•		•		•	o
BS.1153-EPLi			•	•			•		•		•	o
BS.1151-PL	•			•	•							o
BS.1152-PLi		•		•				•	•		•	o
BS.1153-PLi			•	•				•	•		•	o

bScope for phase contrast

MODELs	Bino	Trino	HWF 10x/20 mm eyepieces	Quadruple nosepiece E-plan Phase 10/20/S40 S100x	Quintuple nosepiece E-plan Phase IOS 10/20/S40 S100x	Quintuple nosepiece Plan Phase IOS 10/20/S40 S100x	Köhler Neo-LED™	Neo-LED™	2-position swivelling ergo head	Re-chargeable batteries
BS.1152-EPL PH	•		•	•				•		o
BS.1153-EPL PH		•	•	•				•		o
BS.1152-EPL PHi	•		•		•		•		•	o
BS.1153-EPL PHi		•	•		•		•		•	o
BS.1152-PLP Hi	•		•			•	•		•	o
BS.1153-PLP Hi		•	•			•	•		•	o

The total magnification of the microscope can be calculated by multiplying the magnification of the eyepiece with the magnification of the objective. The magnifications are displayed in the table below:

Eyepiece magnification	Objective magnification	Total magnification
10x	4x	40x
10x	10x	100x
10x	20x	200x
10x	40x	400x
10x	60x	600x
10x	100x	1000x

The S40x, S60x and S100x objectives are equipped with a spring mount, to prevent damage to the front lens and the slide

Components of the microscope

The names of the components are listed below and are indicated in the picture:

A Camera focus adjustment ring
B Trinocular tube
C Microscope head
D Transport handle
E Height adjustment condenser
F Slide protection handle
G Coaxial coarse-and fine adjustment
H Light intensity adjustment knob
I Eyepieces
J Diopter adjustment
K Slide for polarization filter
L Nosepiece
M Objectives
N Stage with X-Y mechanical stage
O X-Y stage controls
P Condenser with iris diaphragm
Q Köhler iris diaphragm
R Collector lens

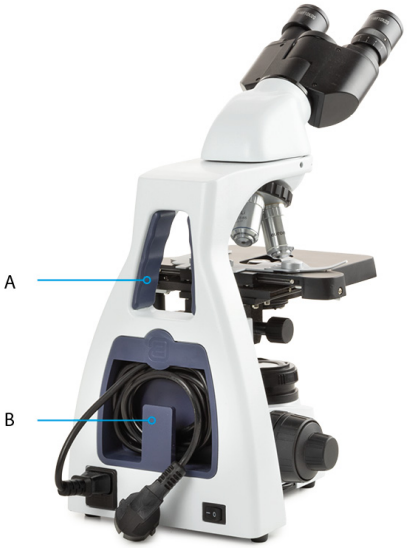
Preparing the bScope microscope for use

Carefully remove the items from its packaging and place them on a flat, firm surface. Please do not expose the microscope to direct sun light, high temperatures, damp, dust or acute shake. Make sure the table or surface is flat and horizontal

When moving the microscope, use the left hand to hold the transport handle (A) and hold the base of the microscope with the right hand

Caution! Hold the microscope at the top of the stand arm when it is moved

Insert the power cord into the back of the microscope and use the cable storage system (CSS) to store excessive cable while in use or to store the cable after use (B)



Caution! If the bacterial solution or water splatters over the stage, objective or head, pull out the power cord immediately and dry the microscope

Assembling steps

Euromex Microscopen BV always tries to keep the number of assembly steps for their customers as low as possible but in some cases there are some steps to be taken. The steps mentioned below are often not necessary but nonetheless described for your convenience

Mounting the objectives

1. Rotate the coarse focusing knob to lower the stage to its lowest position
2. Install the objectives into the objective nosepiece from the lowest magnification to the highest in a clockwise direction from the rear side of the microscope. When using the microscope, start using the low magnification objective (4X or 10X) to search for specimen and focus, hereafter continue with high magnification objective to observe

The microscope head

The standard bScope series configuration is supplied with the head assembled. However, if your order contains a fluorescence or metallurgical attachment then this should be mounted first. There is a supplementary manual supplied with any intermediate attachment with detailed mounting instructions

Placing the eyepieces

The standard bScope series configuration is supplied with the eyepieces assembled. However, if your order contains additional eyepieces, please follow these steps to mount/replace them:
1. Remove the current eyepiece from the eyepiece tube, unlocking it with a screwdriver as shown in the pictures (A and B) on the next page

Note: the eyepiece tube with the diopter adjustment has three screws. In order to remove the eyepiece you need to unscrew the one aligned with "0" (see picture C)
2. Insert the eyepiece into the eyepiece tube
3. Lock the eyepieces with a screwdriver

The eyeshades (optional)

The eyepieces can be equipped with optional rubber eyeshades. This prevents damage to the lens, and stray light. The eyeshade can simply be slipped over the eyepiece

Connecting the power cord

The bScope microscopes support a wide range of operating voltages: from 100 to 240V. Please use a grounded power connection

1. Make sure the power switch is off before connecting
2. Insert the connector of thepower cord into the bScope power socket, and make sure it connects well
3. Insert the other connector into the mains socket, and make sure it connects well. Do not bend or twist the power cord, it will get damaged. Use the power cord that is supplied by Euromex. If it is lost or damaged, choose one with the same specifications

Operation:

Setting up the illumination:

For optimal contrast and resolution one should follow the below procedure:

1. Place a specimen on the object stage and focus using the 4x objective, with a fully opened iris diaphragm
2. Turn light intensity to lowest position, then look through the eyepiece(s) and turn up to the comfortable light intensity level
3. Turn the condenser in the highest position (for phase contrast models, please set condenser to brightfield position)
4. Close the iris diaphragm, until it is just visible on the edge of the field of view

The microscope is properly set for use with the 4x objective. For each other magnification in brightfield use this procedure should be repeated to ensure the best balance between contrast and resolution. Phase contrast set up is explained later in this manual

Caution:
The maximum light intensity when using the 4x and 10x can damage the eyes!

Placing the specimen slide

1. Push the arm of the specimen holder backwards
2. Release the arm slowly clamping the slide with the cover glass facing up
3. Rotating the X and Y-axis knob will move the specimen to the center for alignment with the center of the objective

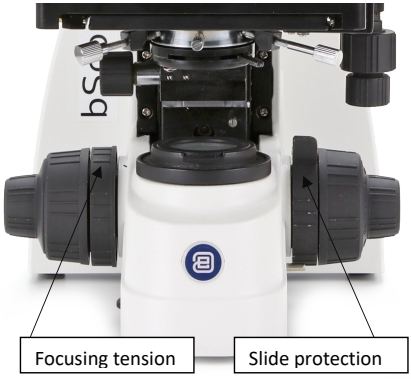
Focusing and slide protection

1. Select the 4x objective and make sure that it is placed correctly in the optical path
2. Move the stage to the top by using the coarse adjustment knob and focus till the image appears
3. Rotate the fine focusing knob to sharpen the image
4. When you perform focusing with a S100x objective, you need to lock the slide protection handle. The slide protection handle protects the slide by limiting the travel range of the mechanical stage. This way the objectives will not touch or damage your slides

Adjusting the focusing tension

The tension of the focusing knobs can be adjusted. You can set it from light to heavy according your own preference. Please note that when the specimen leaves the focus plane after focusing or the stage declines out of its own, then you need to adjust the tension

To tighten the focusing knob (more heavy), rotate the tension adjustment ring counter-clockwise; to loosen it, please turn it in the clockwise direction



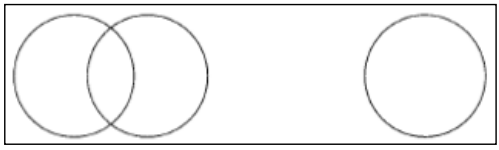
Eyepieces

Using a binocular (or trinocular) tube is less tiring for the eyes than a monocular tube. In order to obtain a smooth “compound” image, we recommend you to go through the below steps

1. The interpupillary distance

The correct interpupillary distance is reached when one round image is seen in the field of view (see image below). This distance can be set by either pulling the tubes towards each other or pulling them away from each other. This distance is different for each observer and thus should be set individually.

When more users are working with the microscope it is recommended to remember your interpupillary distance for a quick set-up during new microscopy sessions. The bScope’s swiveling eyepiece tube can be rotated 360º. You can select corresponding eye point height according to your own preference



Field of view before adjustment

Field of view after adjustment

2. The correct eye point

The eye point is the distance from the eyepiece to the user's pupil. To obtain the correct eye point, move the eyes towards the eyepieces until a sharp image is reached at a full field of view

3. Adjusting the diopter

- Set diopter adjustment ring to zero
- Close the left eye and focus the right tube by adjusting the coarse- and fine adjustment knobs
- Close the right eye and focus the left tube with the diopter adjustment ring.

This procedure should be followed by each individual user. When more users are working on the same microscope it is recommended to remember your own diopter setting for a quick set-up during new microscopy sessions

Abbe condenser

Beneath the object stage an Abbe condenser N.A. 1.25 is mounted. The condenser can be adjusted in height by moving the rack and pinion knob beneath the mechanical stage. By adjusting the condenser you can focus the light on the specimen for a optimized contrast. The condenser is factory pre-centered. If needed, the following procedure can be followed to center the condenser

1. Move the condenser to its highest position
2. Select the 10x objective and place it into the light path and focus the specimen
3. Rotate the field diaphragm adjustment ring to put the field diaphragm to the smallest position
4. Adjust the condenser to the point where the image is the sharpest
5. Adjusting the center adjustment screw and put the image to the center of the field of view
6. Open the field diaphragm gradually
7. The condenser is centered correctly if the image remains in the center when you open the field diaphragm and inscribed to the field of view

The field (Köhler) diaphragm (for Infinity models)

By limiting the diameter of the beam entering the condenser, the field diaphragm can prevent other light from entering and increase the image contrast. When the image is just on the edge of the field of view, the objective will show the best performance and obtain the clearest image. (see A in picture below.) The diaphragm is factory pre-centered

Adjusting the aperture diaphragm (see B in picture below)

1. The aperture diaphragm is used to select the numerical aperture (N.A.) of the illumination. When the N.A. of illumination matches with the N.A. of the objective, you get the highest possible resolution, depth of field and contrast
2. When contrast is low, rotate the diaphragm adjustment ring to 70%-80% of the N.A. of objective this will improve the contrast of the image. The diaphragm is factory pre-centered

Use of the S100x oil-immersion objective

The Euromex bScope microscopes are equipped with an S100x N.A. 1.25 oil immersion objective. Please follow the below instructions on how to use this objective:

1. Remove the dust protection cap from the revolving nosepiece to mount the S100x objective
2. Focus the image with the S40x objective
3. Lock the slide protection handle
4. Turn the revolving nosepiece so the S100x objective almost reaches the click-stop
5. Put a small drop of immersion oil on the center of the slide (always use Euromex Immersion oil)
6. Now turn the S100x objective so that you feel the click stop
7. The front lens is in contact with the immersion oil
8. Look through the eyepiece and focus the image with the fine adjustment knobs
9. The distance between the lens of the objective and the slide is very small!
10. In case there are small bubbles visible, turn the S100x objective a couple of times from left to right so that the front of the objective moves in the oil and the bubbles will disappear
11. After using the S100x objective, loosen the slide protection handle and turn the table with the course adjustment knobs downwards until the front lens doesn't touch the oil any longer. Clean the front lens of the S100x objective
12. Always clean the front lens of the S100x objective with a piece of lens paper that is moistened with a drop of isopropanol. We recommend using Euromex lens paper and isopropanol
13. Clean the slide after use as well

Illumination EUROMEX bScope series

The illumination has the following specifications:

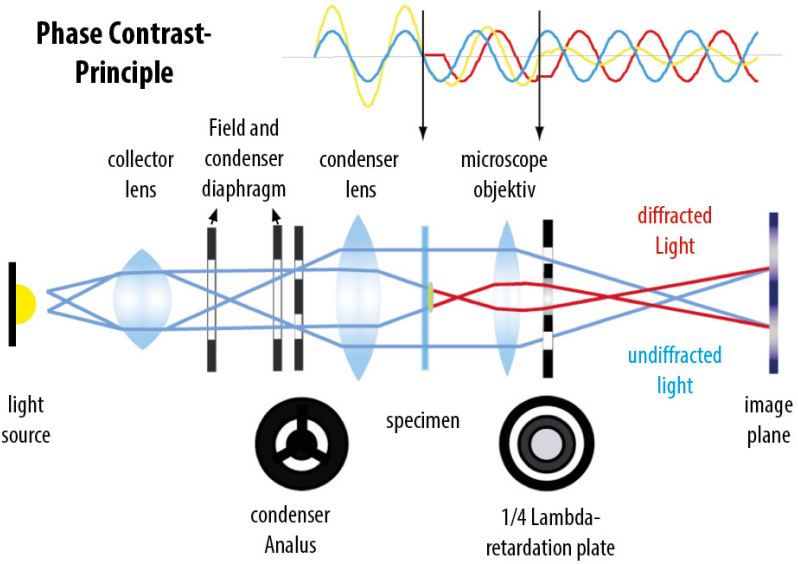
- LED : 3W NeoLED for binocular and trinocular models.
- Power supply : Primary AC 100 - 240 Volt-50Hz.

Fuse specification: 250V 1A

Phase contrast

Use of phase contrast with the bScope microscope

The phase contrast method was designed in 1934 by the Dutchman Frits Zernike to observe very thin or transparent objects. This technique uses the fact that light travelling through tissue undergoes a phase shift due to diffraction.
By recombining the phase shifted light with the background light, a contrasted image appears in the eyepiece



Using the Zernike phase contrast set

Any bScope model with a Zernike phase contrast set comes with the phase contrast condenser and objectives already mounted and centered on your microscope. If you suspect misalignment or want to check the alignment please see the next point for “centering the phase rings”

The height of the condenser can be adjusted by turning the rack and pinion up and down. By doing this the light beam will be focused more on the specimen for maximum resolution

Centering the phase rings

The Zernike phase disc has five positions:

- “0” for brightfield observation, this position also has an iris diaphragm
- “10”
- “20”
- “40”
- “100”

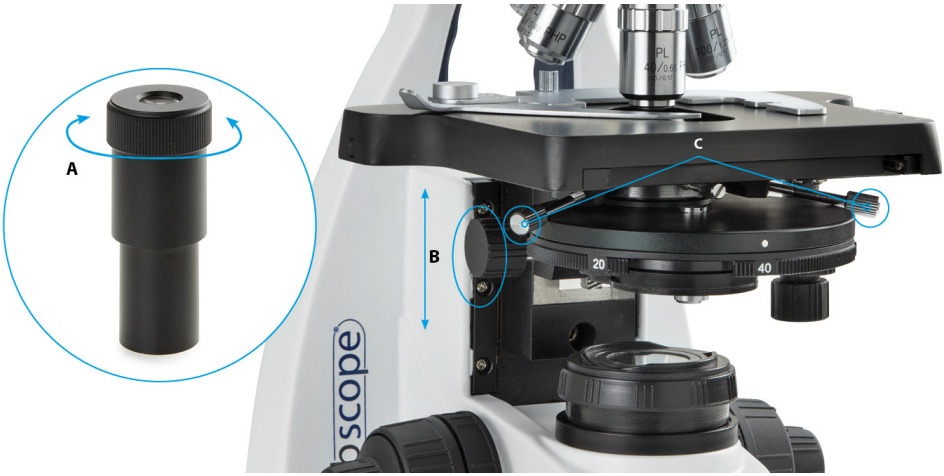
These positions correspond to the respective phase contrast objectives 10x, 20x, 40x and 100x. When the condenser is in the “0” position, the objectives can be used for brightfield observation. For phase contrast, the condenser position should match the objective used, meaning that when the condenser is in position “40” the objective used should also be 40x

Rotate the 10× infinity phase contrast objective into the field of view, then set the Zernike phase disc to position “10” to match the objective

Take the eyepiece out of the tube and insert centering telescope in its place. When looking through the centering telescope, the dark and bright ring images should coincide with each other as shown in the pictures below. If the ring images cannot be observed clearly, focus the centering telescope first (A) and if this does not solve the issue then try to adjust the condenser by turning it up and down (B).
If the bright ring and dark ring images do not coincide as shown below, adjust the position of the ring by moving the ring at the bottom of the condenser with the centering knobs (C). Move it until the bright and dark ring images superimpose. Repeat for all objectives/Zernike disc positions

Not centered

Centered properly



Using the phase contrast slider condenser (optional)

1. Keep the phase contrast slider facing up (text up); insert it from left to right into the condenser slider socket as the direction of the arrow indicates
2. Each slider has three positions, two phase contrast positions and in the center of the slide the brightfield position for normal use without phase contrast. Each phase contrast objective used has to match with the phase contrast ring on the slider. For example: when the 10x phase contrast objective is used, the slider should be positioned to match the 10 phase diaphragm

Note: the phase diaphragms in the sliders are pre-centered. It is not needed to adjust it before using

Maintenance and cleaning

Always place the dust cover over your bScope microscope after use. Always keep the eyepiece and objectives mounted on the microscope to avoid dust entering the instrument

Cleaning the optics

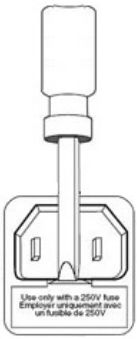
When the eyepiece lens or front lens of the 10x or S40x objective are dirty, they can be cleaned by wiping a piece of lens paper over the surface (circular movements). When this does not help put a drop of alcohol on the lens paper and wipe it. **Never put xylol or alcohol directly on the lens!** Please note that Euromex offers a special microscope cleaning kit: PB.5275
It is not necessary – and not recommended – to clean the lens surfaces at the inner side of the objectives. Sometimes dust can be removed with high pressured air. There will never be dust in the objectives if the objectives are not removed from the revolving nosepiece

Caution
Cleaning cloths containing plastic fibers can damage the coating of the lenses!

Maintenance of the stand

Dust can be removed with a brush. In case the stand or table is really dirty then you can clean the surface with a non-aggressive cleaning product. All moving parts like the height adjustment or the coaxial course and fine adjustment contain ball bearings that are not dust sensitive. With a drop of sewing-machine oil you can lubricate the bearing

Replacing the fuse



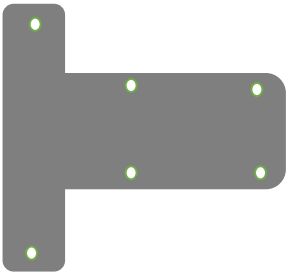
To change the fuse, please follow these procedures:

- Remove the power cord from the back of the microscope
- Locate the fuse compartment, which has a fuse image. It is typically located beneath the power connector
- Remove the fuse compartment. To do so, insert a flat head screw driver between the metal power tines and gently pry the fuse compartment loose with a slight downward and outward motion
- Insert the new fuse into the compartment, and replace the fuse compartment cover to where it originally was
- Power up the microscope and test
-

Note: ***The fuse may blow. In most cases, replacing the fuse with the correct voltage will resolve the issue. However, should you encounter a blown fuse frequently, please contact your distributor for further assistance***

Fuse specification: 250V, 150 mA

Replacing/placing the rechargeable batteries (optional)



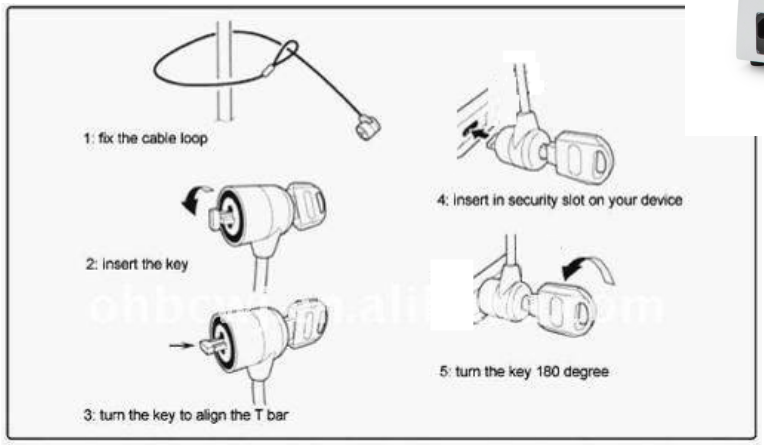
1. Remove the power cord from the back of the microscope
2. Place the microscope on its back
3. Remove the six screws of the base of the microscope
   Location of screws are indicated on drawing aside
   The battery compartment in located on the baseplate
4. Open battery compartment, by removing the small screw on top, slide compartment open
5. Place batteries and close the compartment

Note: ***Always use high quality rechargeable batteries, preferably supplied by Euromex. Minimum 1800mA capacity type. Charge batteries fully for 8 hours. Use the microscope untill batteries are fully depleted then recharge again. Average use with full batteries: 8-32 hours, depending on light intensity and battery capacity and quality***

Green battery indicator: batteries are charged
Red battery indicator: batteries are being charged

Using the Kensington security slot

At the back of the microscope a Kensington security slot is placed, which can be used to secure the instrument from theft using a Kensington lock (not supplied)

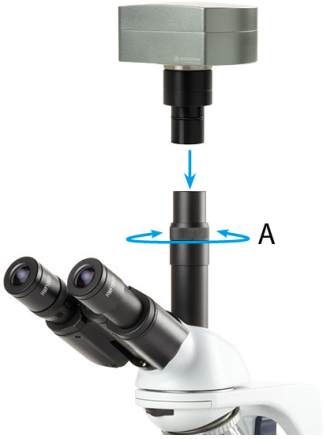


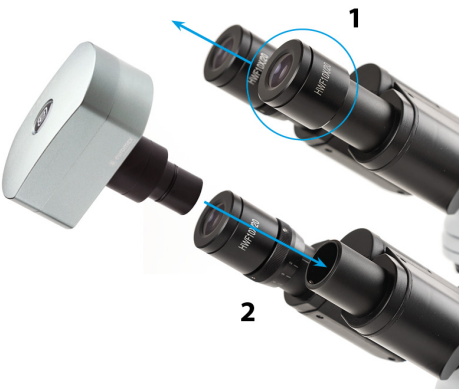
Digital cameras

Digital models are equipped with a build in digital camera inside. Connect the suppled USB cable to camera and follow the dedicated software manual for use. The LED which is placed beside the USB port will start to blink when activated by the software

Digital cameras are designed to be used on the photo port of the microscope head. It is also possible to use the digital camera in combination with a binocular head. To use the camera on a binocular bScope, you can simple remove the eyepiece[1] and then place the camera with mounted c-mount adapter into the eyepiece tube[2]. Focus the digital image with the coarse and fine controls of the microscope

For trinocular models, slide the camera with mounted c-mount adapter into the 23,2mm tube of the photo port. Take an easy-to-view specimen and focus the image through the microscope's eyepieces. For focusing the camera, slowly move tube (A) up and down while watching at the screen untill the camera view is in focus
Follow the manual that comes with the camera for camera operation





Trinocular bScope head with camera in photo port	Binocular bScope infinity type head with camera replacing the original eyepiece

ACCESSORIES AND SPARE PARTS

For current accessories and spares, please check our website www.euromex.com

Notes

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CE

CE OVEREENKOMSTIGHEIDSVERKLARING
CE DECLARATION OF CONFORMITY
DECLARATION CE DE CONFORMITE

EUROMEX microscopes Holland
Papenkamp 20
6836 BD Arnhem, THE NETHERLANDS

Declares under its sole responsibility that the products:

EUROMEX microscopes of the bScope-series

are in conformity with the following standards:

EN 61010-1
EN 50081-1
EN 50082-1

and therefore are in conformity with the Protection Requirements of Council Directive 89/336/EEC on the approximation of the laws of Member States relating to electromagnetic compatibility.

Signed

Date: January 2019

D. van Baaren
Area Sales Manager

Lloyd's Register

Current issue date: 29 June 2021
Expiry date: 28 June 2024
Certificate identity number: 10383918

Original approval(s):
ISO 9001 - 26 April 2021

Certificate of Approval

This is to certify that the Management System of:

Euromex Optics Group B.V.

Papenkamp 20, 6836 BD Arnhem, The Netherlands

has been approved by Lloyd's Register to the following standards:

ISO 9001:2015

Approval number(s): ISO 9001 – 00030608

This certificate is valid only in association with the certificate schedule bearing the same number on which the locations applicable to this approval are listed.

The scope of this approval is applicable to:

Development and design of microscopes, assembly, marketing, sale and servicing of these microscopes. The supply and logistics of optical and opto-mechanical components.

This certificate is a continuation of a previous approval from another certification body as follows:

Previous original ISO 9001 approval on 28-JUN-2018, TÜV Rheinland Nederland B.V. certificate number SZ 4600759

Paul Graaf

Chief Operating Officer, Management Systems, MSIS

Issued by: Lloyd's Register Nederland B.V.

for and on behalf of: Lloyd's Register Quality Assurance Limited

UKAS MANAGEMENT SYSTEMS
0001

Lloyd's Register

Certificate identity number: 10383918

Certificate Schedule

Location	Activities
Euromex Optics Group B.V. Papenkamp 20, 6836 BD Arnhem, The Netherlands	**ISO 9001:2015** Development and design of microscopes, assembly, marketing, sale and servicing of these microscopes. The supply and logistics of optical and opto-mechanical components.
Physix Photonics B.V. Papenkamp 20, 6836 BD Arnhem, The Netherlands	**ISO 9001:2015** The supply and logistics of optical and opto-mechanical components.
Euromex Microscopen B.V. Papenkamp 20, 6836 BD Arnhem, The Netherlands	**ISO 9001:2015** Development and design of microscopes, assembly, marketing, sale and servicing of these microscopes.

UKAS MANAGEMENT SYSTEMS
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Lloyd's Register

Current issue date: 16 June 2021
Expiry date: 15 June 2024
Certificate identity number: 10371022

Original approval(s):
ISO 13485 - 16 June 2021

Certificate of Approval

This is to certify that the Management System of:

Euromex Optics Group B.V.

Papenkamp 20, 6836 BD Arnhem, The Netherlands

has been approved by Lloyd's Register to the following standards:

ISO 13485:2016

Approval number(s): ISO 13485 – 00031249

This certificate is valid only in association with the certificate schedule bearing the same number on which the locations applicable to this approval are listed.

The scope of this approval is applicable to:

Development and design of medical microscopes, assembly, marketing, sale and servicing of these microscopes.

Paul Graaf

Chief Operating Officer, Management Systems, MSIS

Issued by: Lloyd's Register Nederland B.V.

for and on behalf of: Lloyd's Register Quality Assurance Limited

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Lloyd's Register

Certificate identity number: 10371022

Certificate Schedule

Location	Activities
Euromex Optics Group B.V. Papenkamp 20, 6836 BD Arnhem, The Netherlands	**ISO 13485:2016** Development and design of medical microscopes, assembly, marketing, sale and servicing of these microscopes.
Euromex Microscopen B.V. Papenkamp 20, 6836 BD Arnhem, The Netherlands	**ISO 13485:2016** Development and design of medical microscopes, assembly, marketing, sale and servicing of these microscopes.

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