



## Product overview



## Equipment (scope of delivery)

- 1 LCD display
- 2 On/Off button
- 3 HDMI output and USB port
- 4 SD card slot
- 5 Microscope stand
- 6 Rotatable objective nose piece with 4 holders
- 7 Microscope table (cross-stage with vernier scale)
- 8 Longitudinal adjustment of the cross table
- 9 Cross adjustment of the cross table
- 10 Condenser with 10a condenser diaphragm
- 11 Preparation holder
- 12 Coarse focus
- 13 Fine focus
- 14 Condenser height adjustment
- 15 On/off switch LED illumination
- 16 Brightness controller
- 17 Mains connection

A Mains adapter with Euro plug and hollow plug

B USB data cable with micro USB connector and USB-A connector

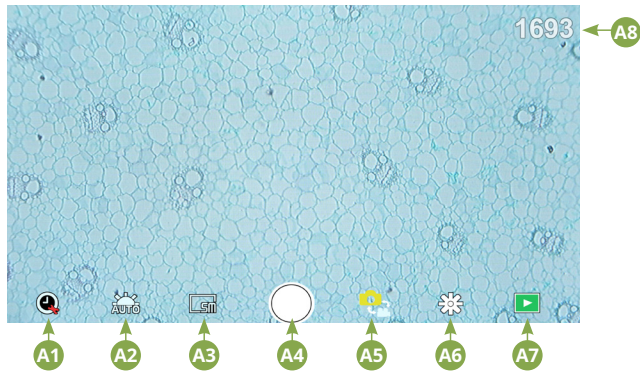
C HDMI monitor cable with micro USB connector and HDMI connector



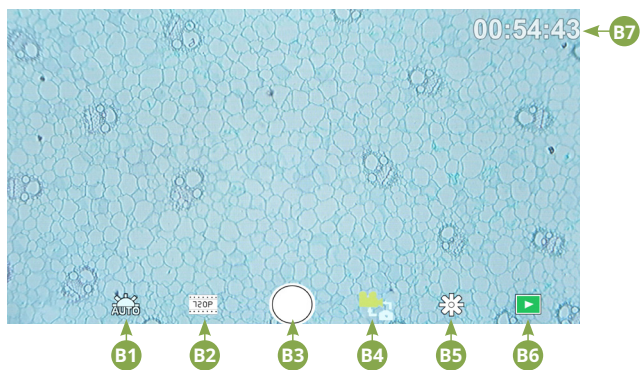


## LCD display with touch and zoom functions

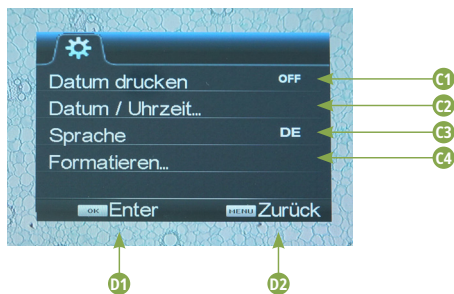
### Photo mode



### Video mode



### Settings



## Touch screen operating elements

### Photo mode

A1	<b>Automatic recording</b> Select a time lapse (minutes : Seconds) to have photos taken automatically. Pressing the "Shutter" button stops the automatic recording.
A2	<b>White balance</b> Auto (preset, daylight (sun), daylight (overcast), artificial light, fluorescent lamp)
A3	Photo resolution 5 MP (2592 x 1944 pixels)
A4	<b>Trigger</b> Taking a photo
A5	switch between photo mode and video mode
A6	Settings

A7	<b>SD card access</b> all taken photos and videos are displayed here. You can see the number in the upper right corner. By "swiping" with one finger, you can go forward or backward. Videos can be played with "Play". Photos can be enlarged by "pulling them apart" with two fingers (max. 8.00x). In the enlarged view, the visible area can be moved.  Menu: This function offers you the possibility to protect or delete photos/videos. Under "Protect" you can choose between: "Protect one" (current photo/video), "Protect all", "Unprotect all". Under "Delete" you can delete individual or all the photos/videos. Click on "Back" to return to the live image. NOTE: If the SD card is formatted, backed up images/ videos will still be deleted.
A8	<b>Display still available images</b> Displays the number of images that can still be taken. (Depending on the information content of the image, the reduction of the display may vary)

### Video mode

B1	<b>Video white balance</b> See "A2"
B2	<b>Video resolution</b> Selectable between 720P (60 fps) and 1080P (30 fps) With 720P recordings, almost the entire sensor surface is used. For 1080P recordings, a corresponding section is displayed (starting approximately at the bottom left of the visible field).
B3	<b>Trigger</b> Starting a video recording / Stopping a video recording
B4	switch between video mode and photo mode
B5	Settings
B6	SD card access see "A7"
B7	Display of remaining available video recording time

### Settings

C1	<b>Date display in image, show / hide</b> Adjustable: OFF, date only, date / time
C2	<b>Date / time, input</b> Line 1: Setting of date and time (24h system) Line 2: Setting the date format: YYYY/MM/DD, DD/MM/YYYY, MM/DD/YYYY
C3	<b>Language</b> Selectable between: English, Chinese (Simplified), Chinese (Traditional), German
C4	<b>Formatting the SD card</b> Here the SD card is formatted. Confirm with Yes or No. If "Yes" is selected, all data on the SD card will be deleted. If the SD card is formatted in a PC/laptop, select "FAT 32".
C5	Confirm selected setting
C6	Back to the overview

**DANGER!**

You will find this symbol before every section of text that deals with the risk of minor to severe injuries resulting from improper use.

**CAUTION!**

You will find this symbol before every section of text that deals with the risk of minor to severe injuries resulting from improper use.

**NOTE!**

You will find this symbol in front of every section of text which deals with the risk of damage to property or the environment.

**Designated use**

This device is for personal and private use only. It was developed for a magnified representation of observations of nature.

**General warnings****DANGER!**

Sharp-edged and pointed tools are often used for working with this device. Therefore, keep this device and all accessories and tools in a place inaccessible to children. Danger of bodily injury!

**DANGER!**

This device contains electronic parts which are powered by a power source (AC adapter and/or batteries). Never leave children unattended whilst handling the device! Only use the device as described in the manual. Otherwise, you run the DANGER of an ELECTRIC SHOCK.

**DANGER!**

Do not expose the device to high temperatures. Use only the supplied AC adapter. Do not short-circuit the device or batteries or dispose of in fire! Excessive heat and improper handling can cause short circuits, fires and even explosions!

**DANGER!**

Never bend, squeeze or pull power cables, connecting cables, extensions or connectors. Protect cables from sharp edges and heat. Check this device, cables and connections for damage before use.

Never attempt to operate a damaged device, or a device with damaged electrical parts! Damaged parts must be replaced immediately by an authorized service agent.

**DANGER!**

• Children must only use the device under adult supervision. Keep packaging materials (plastic bags, rubber bands, etc.) away from children! There is a DANGER

OF CHOKING!

**CAUTION!**

Chemicals and liquids do not belong in children's hands! Do not drink chemicals! Clean hands thoroughly under running water after use. In case of accidental contact with eyes or mouth, rinse with water. In case of complaints, consult a doctor immediately and show the substances.

**NOTE!**

Do not disassemble the device! In the event of a defect, please contact your dealer. They will contact the Service Centre and can arrange the return of this device for repair if necessary.

# General Information

## About this instruction manual

Please read the safety instructions in this manual carefully. Use this product only as described in the manual to avoid damage to the device or injury. Keep the operating instructions in a safe place so that you can always keep up to date on all the operating functions.

## SD card (not included)

If you want to save photos or videos with your microscope, you need an SD card up to max. 32GB. Insert it into the slot (4) until it clicks into place. You can even do this when the power is on. To remove, press the SD card until you hear a clicking sound. Now you can easily pull it out. If the shutter release button is pressed when the SD card is not inserted, an error message appears: "No card."

## general / Location

Before you start setting up your microscope, choose a suitable location. First, make sure that your microscope is placed on a stable, vibration-free surface.

For start-up, the supplied power adapter is connected to the microscope (A) and a 230 V socket. Use the on/off switch (15) of the microscope to switch on the corresponding illumination and turn the brightness control knob (16) to adjust the brightness for optimal illumination of the specimen. (For safety reasons, please use only the supplied power supply. Third-party power supplies may not meet the required technical specifications. Damage caused to the device by third-party power supplies is not covered by the warranty)

## Built-in LED lighting

For start-up, the supplied power adapter (A) is connected to the microscope and a 230 V socket. The illumination is switched on with the on/off switch (15) of the microscope "I/O". The LED illumination is equipped with a continuously adjustable brightness control (16) for optimal illumination of the specimen. By turning the brightness knob, the LED light can be adjusted brighter or darker.

One component of the illumination is the Abbe condenser (10). Adjust it using the height adjustment (14) so that you obtain a well illuminated image field. For most observations, the top position of the condenser is required. The condenser diaphragm (10a) is used to adjust the illumination according to the aperture of the objectives. Correct diaphragm setting ensures optimum resolution. At higher magnifications, the diaphragm must be opened further (turn lever to the left). A (too wide) closed condenser diaphragm will increase contrast and depth of field, but fine details will be lost.

## Observation

Rotate the objective revolver (6) to select the 4x objective for object observation. To do this, place a permanent specimen directly under the objective on the microscope table (7) by clamping it in the table. To do this, first push the specimen holder (11) to the side, place the permanent specimen on the mechanical table and carefully allow the specimen holder to return to the permanent specimen. The object to be observed must be exactly above the illumination. To achieve this, there are two knurled screws on the cross table, the so-called cross table drives (8 and 9). By turning these screws, exact positioning of the object, in the right or left direction and forward or backward is possible. To focus the specimen, first turn the coarse focusing knob (12). You can achieve precise focusing with the fine focusing (13). To change the magnification, turn the revolving nosepiece (6) to the

10x objective. Now focus the image using the fine focus only. Proceed with the 40x objective in the same way as with the 10x objective. The brightness control can be used to optimally adjust the contrast and the imaging quality of the object to be viewed. By the way: The higher the magnification, the more light is needed for good image quality.

## The microscope table (cross-table with vernier scale)

With the microscope stage (7), you are able to view your specimen accurately and to the millimeter. The specimen is fixed on the microscope stage for observation using the specimen holder (11). Now move the object directly under the objective using the axis adjustment (8 and 9). With the vernier graduation on both axes, you can now move the object "true to size" and view it at different magnifications.

## Digital zoom (up to 4x)

The screen magnification can be increased to a maximum of 4x by "pulling apart" with two fingers. By "pushing together" the image can be reduced to its original size again.

## Hide / Show on-screen menu

By pressing on a free area of the screen, the menu can be shown or hidden.

## Connection to a PC/laptop

You can transfer images and videos stored on an SD card to a PC/laptop.

To do this, turn the microscope on. Then plug the supplied USB cable (B) into the USB socket of the microscope (3) and into a free socket on the PC/laptop.

The message "Connecting" appears on the screen. If this goes out, you can access the SD. The microscope is now recognised as a mass storage device.

To exit, correctly log off the microscope. Pull out the USB cable. Press and hold the On/Off key (2) for approx. 2-4 seconds. The microscope switches off, which is signaled by the word "Good Bye" on the display (1) and a beep.

## WiFi connection

The microscope can transmit the image to a device with HDMI input (e.g. monitor, TV set or beamer).

Plug the supplied HDMI cable (C) into the microscope's micro HDMI output (3) and into an appropriate receiving device.

Switch on the microscope. After a few seconds, the image appears on the receiving device. The monitor of the microscope remains off.

If the image does not appear on the receiving device, check the settings. If necessary, a look at the manual of the corresponding device will help.

To exit, the microscope screen can be turned off.

NOTE: Images or videos cannot be captured in HDMI mode.

## Technical data

Objectives:	4x, 10x, 40x, 60x
Magnification:	4x 0.35 x 0.2mm 10x 0.14 x 0.08mm 40x 0.036 x 0.02mm 60x 0.022 x 0.012mm
Illumination:	dimnable LED transmitted light illumination
SD Card	Compatible with SD and SDHC up to a maximum of 32 GB
Resolution photo:	4608 x 3456
Resolution video:	1920 x 1080, 30 FPS 1280 x 720, 60 FPS

## Notes on Cleaning

### 1. Do not disassemble the microscope!

The microscope is a precision optical instrument and should not be disassembled unnecessarily. This can seriously damage its functionality. Do not disassemble the lenses either!

### 2. Avoid soiling!

You should avoid dust or moisture coming into contact with your microscope. Also avoid fingerprints on all optical surfaces! If dust or dirt should nevertheless get onto your microscope or accessories, remove them as described below.

### 3. Cleaning of non-optical components:

Before cleaning non-optical components of the microscope (e.g. housing, microscope stage), please disconnect the microscope from the power supply. Dust or dirt on the microscope or accessories should first be removed with a soft brush. Then clean the soiled areas with a soft, lint-free cloth, which you can also dampen with a mild detergent solution beforehand. The residual moisture should be completely dry before using the microscope. Do NOT use solvents such as alcohol, ether, acetone, xylene or other thinners) to clean painted or plastic parts! Special attention is paid to the pressure-sensitive display surface. Dirt or fingerprints should generally only be cleaned with a lightly damp and lint-free cloth. Please do not use any additional cleaning agents!

### 4. Cleaning of optical components:

To increase the imaging quality, the objective lenses of the microscope are coated to a high standard. They should not be wiped dry, as dry dirt or dust can scratch the sensitive coating. For easier cleaning of the objectives, unscrew them from the turret. Then always blow the loose dust off the lens surfaces first. Use good quality lens wipes or soft cloth, slightly moistened with pure alcohol (available in pharmacies) and wipe the lens surface clean with it.

### 5. Non-use:

After use, cover the microscope with the dust cover and place it in a dry and mold-free place. In case of prolonged non-use, we recommend storing all lenses in a closed container with desiccant.

**Remember:** A well-maintained microscope will retain its optical quality and thus its value for years to come.

## Disposal



Dispose of the packaging materials by type. Contact your local waste-disposal service or environmental authority for information about the proper disposal.



Do not dispose of electronic devices in the household waste! According to the European Directive 2002/96/EU on Waste Electrical and Electronic Equipment and its transposition into national law, used electrical equipment must be collected separately and recycled in an environmentally sound manner.

Observe the current legal regulations when disposing of the device! Information on proper disposal can be obtained from municipal waste disposal service providers or the Environmental Agency.

## EC declaration of conformity



A "Declaration of conformity" in accordance with the applicable directives and corresponding standards has been prepared by Bresser GmbH. The full text of the EC declaration of conformity is available at the following Internet address:

[www.bresser.de/download/5702100/CE/2010200\\_CE.pdf](http://www.bresser.de/download/5702100/CE/2010200_CE.pdf)

## Warranty

The regular warranty period is 2 years and begins on the day of purchase. To benefit from an extended voluntary guarantee period as stated on the gift box, registration on our website is required.

You can consult the full guarantee terms as well as information on extending the guarantee period and details of our services at [www.bresser.de/warranty\\_terms](http://www.bresser.de/warranty_terms).

# Service

**GB AT CH BE**

Bei Fragen zum Produkt und eventuellen Reklamationen nehmen Sie bitte zunächst mit dem Service-Center Kontakt auf, vorzugsweise per E-Mail.

E-Mail: [service@bresser.de](mailto:service@bresser.de)  
Telefon\*: +49 28 72 80 74 350

## **BRESSER GmbH**

Kundenservice  
Gutenbergstr. 2  
46414 Rhede  
Deutschland

\*Lokale Rufnummer in Deutschland (Die Höhe der Gebühren je Telefonat ist abhängig vom Tarif Ihres Telefonanbieters); Anrufe aus dem Ausland sind mit höheren Kosten verbunden.

**GB IE**

Please contact the service centre first for any questions regarding the product or claims, preferably by e-mail.

E-Mail: [service@bresseruk.com](mailto:service@bresseruk.com)  
Telephone\*: +44 1342 837 098

## **BRESSER UK Ltd.**

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Edenbridge, Kent TN8 6HF  
United Kingdom

\*Number charged at local rates in the UK (the amount you will be charged per phone call will depend on the tariff of your phone provider); calls from abroad will involve higher costs.

**FR BE**

Si vous avez des questions concernant ce produit ou en cas de réclamations, veuillez prendre contact avec notre centre de services (de préférence via e-mail).

E-Mail: [sav@bresser.fr](mailto:sav@bresser.fr)  
Téléphone\*: 00 800 6343 7000

## **BRESSER France SARL**

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314 Avenue des Chênes Verts  
83170 Brignoles  
France

\*Prix d'un appel local depuis la France ou Belgique

**NL BE**

Als u met betrekking tot het product vragen of eventuele klachten heeft kunt u contact opnemen met het service centrum (bij voorkeur per e-mail).

E-Mail: [info@bresserbenelux.nl](mailto:info@bresserbenelux.nl)  
Telefoon\*: +31 528 23 24 76

## **BRESSER Benelux**

Smirnoffstraat 8  
7903 AX Hoogeveen  
The Netherlands

\*Het telefoonnummer wordt in het Nederland tegen lokaal tarief in rekening gebracht. Het bedrag dat u per gesprek in rekening gebracht zal worden, is afhankelijk van het tarief van uw telefoon provider; gesprekken vanuit het buitenland zullen hogere kosten met zich meebrengen.

**ES IT PT**

Si desea formular alguna pregunta sobre el producto o alguna eventual reclamación, le rogamos que se ponga en contacto con el centro de servicio técnico (de preferencia por e-mail).

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Teléfono\*: +34 91 67972 69

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