BIOLUX TOUCH 5MP HDMI

Digitales Mikroskop mit HDMI-Anschluss
Digital microscope with HDMI connection
Microscope numérique avec connexion HDMI
Microscopio digital con conexión HDMI

Art. No. 5201020



DE **BEDIENUNGSANLEITUNG**
EN **INSTRUCTION MANUAL**
FR **MANUEL D'INSTRUCTION**
ES **MANUAL DE INSTRUCCIONES**

Fig. 1


1
14
2
3
4
10X
40X
8
5
6
9
12
Max. 32 GB
13
15
18
19
16
17
10
7
11
5V, 1A
20
21

Fig. 2

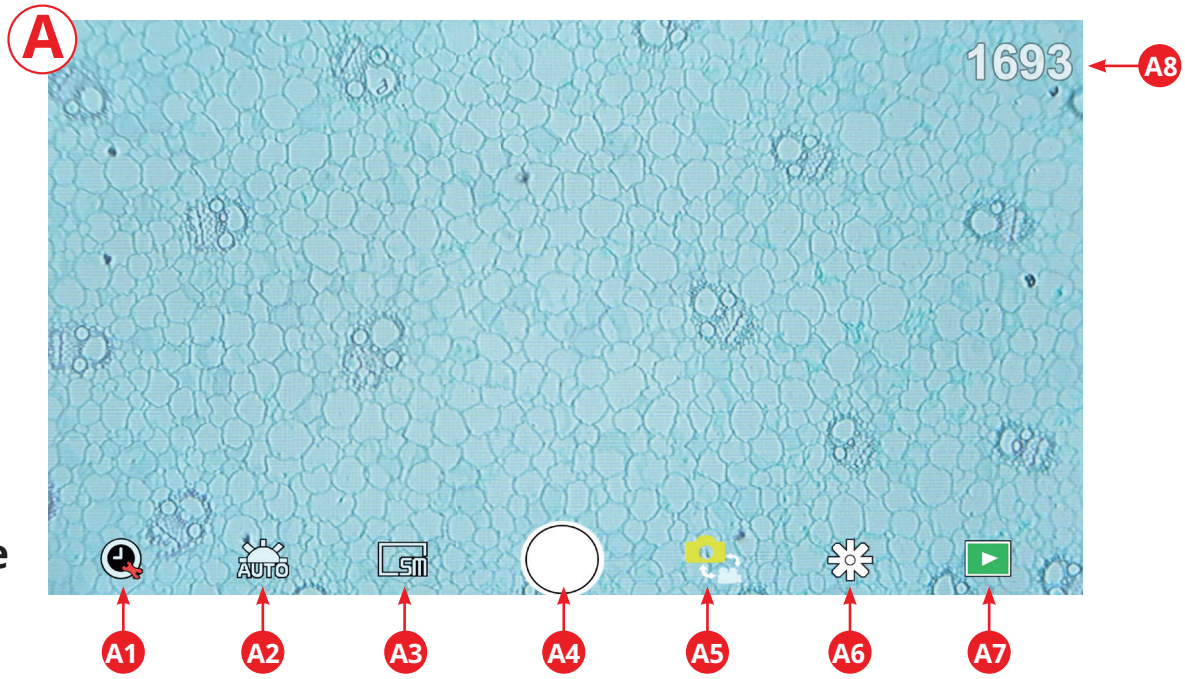
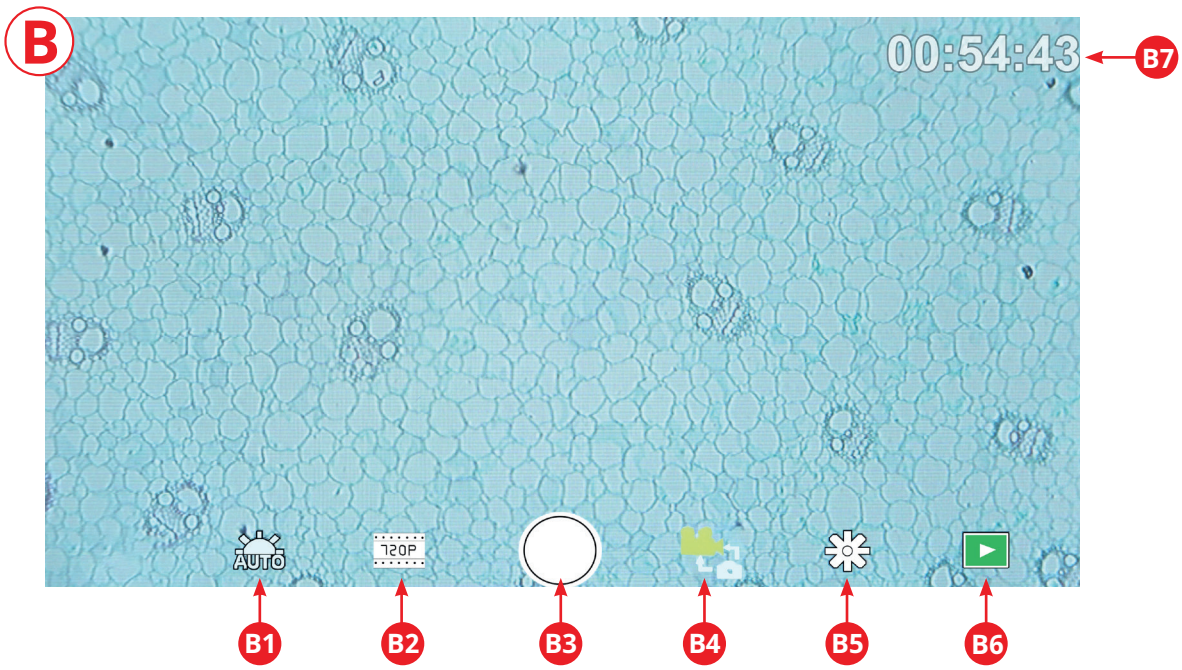
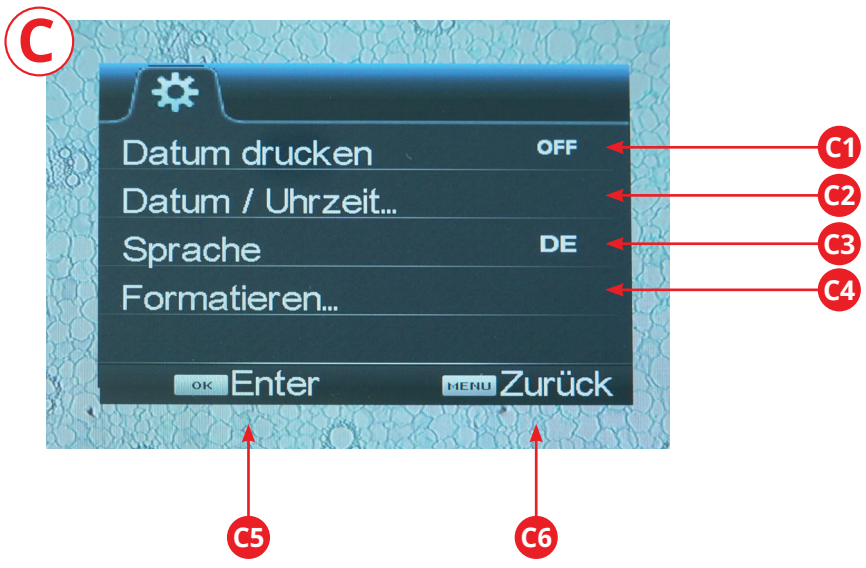


Photo mode



Video mode



Settings

Scope of delivery

- Microscope with touch screen and 3 objectives: 4x/10x /40x
- HDMI connection cable
- Power supply unit 5V 1A (EU)
- Microscope set (dissecting needles, pipette, tweezers, MicroCut)
- Artemia set for hatching prehistoric crustaceans
- Box with 5 permanent slides, 10 microscope slides and 10 cover glasses
- Dust cover

Parts overview (Fig. 1)

1. Display
2. ON/OFF button for display
3. Nosepiece
4. Interchangeable objectives with varying magnification
5. Stage
6. LED transmitted light illumination
7. Power supply (5V, 1A) (EU)
8. Colour filter wheel
9. Storage compartment for small items
10. Focusing knobs (coarse and fine)
11. Power connection on the back
12. SD card slot, max. 32 GB
13. Mini USB connection
14. HDMI output
15. LED incident light illumination
16. Cross table
17. Specimen clamp holder
18. Cross table drive forward/backward
19. Cross table drive left/right
20. ON/OFF switch with integrated dimmer for incident light illumination
21. ON/OFF switch with integrated dimmer for transmitted light illumination

Operation

SD card (not included in delivery)

If you want to store photos or videos with your microscope, you need an SD card up to 32 GB.
Insert the card into the slot (Fig. 1, 12) until it clicks into place. You can also do this when the device is switched on. To remove it, press the SD card until you hear a clicking sound. Now you can easily pull it out.
If the shutter button is pressed when the SD card is not inserted, an error message appears: „No card“.

General information

Select a suitable location before starting to set up your microscope. First make sure that your microscope is standing on a stable, vibration-free surface. In order to put the microscope into operation, the power supply provided must be connected to the microscope (Fig. 1, 7/11) and a 230 V plug socket. The appropriate illumination is switched on using the switch (Fig. 1, 20/21), and the brightness is controlled for optimum illumination of the specimen by turning the selection wheel.

! NOTE!
For safety reasons, please only use the power supply provided. Other power supplies may not meet the required technical specifications. Damage to the device caused by other power supplies is not covered by the guarantee.

Electric LED illumination with dimmer

Transmitted light illumination (Fig. 1, 6) is used for transparent specimens (specimens on microscope slides). Select incident light illumination (Fig. 1, 15) to observe opaque objects. The simultaneous use of transmitted and incident light illumination is only advisable with semi-transparent objects. This mode is not recommended for transmitted light objects on slides since too much light may be reflected on the slide.

Colour filter wheel

The colour filter wheel (Fig. 1, 8) beneath the stage can be used to influence the image quality when observing transparent specimens. Fine details are displayed better depending on the colour and object. A coloured lower light in combination with a white upper light can also optimise image details when observing objects under incident light (e.g. transparent objects).

Observation

Turn the nosepiece (Fig. 1, 3) to select the 4x objective for observing objects. Depending on the object, select upper or lower lighting for optimum illumination.
To do this, place a permanent specimen directly under the objective on the stage (Fig. 1, 5) by clamping it into the cross table (Fig. 1, 16). To do this, first press the lever for the specimen clamp holder (Fig. 1, 17) to the side, place the permanent specimen on the cross table and let the clamp holder carefully return to the permanent specimen. The object to be observed must lie exactly above/below the illumination. To achieve this, there are two knurled screws on the cross table, the so-called cross table drives (Fig. 1, 18 and 19). By turning these screws it is possible to position the object exactly, to the right or left (Fig. 1, 19) and to the front or back (Fig. 1, 18).

To focus the specimen, first turn the coarse focusing knob (Fig. 1, 10 / inner knob). Precise focusing is achieved with the fine focusing knob (Fig. 1, 10 / outer rotary knob).

To change the magnification, turn the nosepiece (Fig. 1, 3) onto the 10x objective. Now focus the image with the fine focus only. For the 40x objective, proceed in the same way as for the 10x objective.

The dimmers (Fig. 1, 20 and 21) can be used to optimally adjust the contrast and quality of the image of the object under observation.
Turn the nosepiece (Fig. 1, 3) to switch objectives if increased magnification is desired.

! NOTE!
Incidentally: The higher the level of magnification, the more light is required for good image quality.

Incident light illumination is optimised for the 4x objective. The specimen is generally no longer fully illuminated if the 10x or 40x objective is used.

Digital zoom (up to 4x)
The screen magnification can be increased to a maximum of 4x by „stretching“ with two fingers. By „pushing together“ the image can be reduced back to its original size.

Show/hide 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, put the microscope into operation. Then plug the USB cable supplied into the USB connection of the microscope (Fig. 1, 13) and into a free socket on the PC/laptop.

The message „Connecting“ appears on the screen. If it goes out, you can access the SD. The microscope is now recognized as a mass storage device.

Log off the microscope properly to exit. Pull out the USB cable. Press and hold the ON/OFF button for display for about 2-4 seconds. The microscope turns off, which is signaled by a beep.

HDMI connection
The microscope can transmit the image to a device with HDMI input (e.g. display, TV set or beamer).
Connect the HDMI cable supplied with the microscope to the HDMI output (Fig. 1, 14) of the microscope and to a suitable receiver.
Switch on the microscope. After a few seconds the image will appear on the receiver. The display of the microscope will remain off.

If the image does not appear on the receiving device, check the settings. If necessary, refer to the manual of the corresponding device.

To exit, the microscope display can be switched off.

NOTE: It is not possible to take pictures or videos in HDMI mode.

Operating elements of the touch screen

Photo mode (Fig. 2, A)

A1	**Automatic recording** Select a time interval (minutes : seconds) to have photos taken automatically. Press the „Shutter“ button to stop automatic recording.
A2	**White balance** Auto (default, daylight (sun), daylight (overcast), artificial light, fluorescent lamp
A3	Photo resolution 5 MP (2592 x 1944 pixels)
A4	**Trigger** Taking a photo
A5	Switching from Photo Mode to Video Mode
A6	Settings
A7	**Access to SD card** This is where all the photos and videos you have taken are displayed. You can see the number in the top right corner. By „wiping“ with one finger, you can go back or forward. Videos can be played with „Play“. Photos can be enlarged by „pulling apart“ with two fingers (max. 8.00x). In the enlarged view, the visible area can be moved. Menu: This function allows you to protect or delete photos/videos. Under „Protect“ you can choose between: „Protect one“ (current photo/video), „Protect all“, „Unlock all“. Under „Delete“ you can delete single or all photos/videos. Click on „Back“ to return to the live image. NOTE: If the SD card is formatted, saved images/videos will still be deleted.
A8	**Display of still available images** Indicates the number of images that can still be captured. (Depending on the information content of the image, the display reduction may vary).

Video mode (Fig. 2, B)

B1	**Video white balance** See „A2“.
B2	**Video resolution** Selectable between 720P (60 fps) and 1080P (30 fps) For 720P recordings, almost the entire sensor surface is used. For 1080P recordings, a corresponding section is displayed (starting at the bottom left of the visible field).
B3	**Trigger** Starting a Video Recording / Stopping a Video Recording
B4	Switching from Video Mode to Photo Mode
B5	Settings
B6	Access to SD card See „A7“
B7	Display still available video recording time

Settings (Fig. 2, C)

C1	**Date display in image, fade in / fade out** Adjustable: OFF, date only, date / time
C2	**Date / time, input** Line 1: Setting the date and time (24h system) Line 2: Setting the date format: YYYY/MM/DD, DD/MM/YYYY, MM/DD/YYYY
C3	**Language** Selectable between: English, Chinese (simplified), Chinese (traditional), German
C4	**Formatting the SD card** Here the SD card is formatted. Confirm with Yes or No. If you select Yes, 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

Technical data

Objectives	4x, 10x, 40x
Magnification*	about 30x, about 78x, about 290x *Referred to the representation on the microscope display
SD card (not included in delivery)	Compatible with SD and SDHC cards up to 32 GB
Resolution photo	2592 x 1944 Pixel
Resolution Video	1280 x 720 Pixel (60 fps) 1920 x 1080 Pixel (30 fps)
Screen resolution	853 x 480 Pixel

Power supply unit	Output: 5V, 1A (EU) Plug: outside 5.5 mm, inside 2.1 mm Polarity: + in the middle / - outside (-)-(o-(+)

Notes on cleaning

1. Avoid disassembling the microscope!
Because of being a precise optical instrument, do not disassemble the microscope. That may cause serious damage to its performance. Do not disassemble the objectives.

2. Avoid contamination!
You should avoid dust or moisture coming into contact with your microscope. Avoid putting fingerprints on any optical surfaces! If dust or dirt nevertheless have gotten onto your microscope, or the accessories, remove it as described below.

3. Cleaning non-optical parts:
Disconnect the plug from mains socket before cleaning non-optical parts of the microscope (e. g. the frame or the stage). Firstly, remove dust or dirt from your microscope, or accessories, using a soft brush. Then clean the soiled area with a soft, lint-free cloth; the cloth may be moistened with a mild detergent solution. Be sure that the microscope is dry before using. For cleaning the painted parts or plastic components, do NOT use organic solvents such as alcohol, ether, acetone, xylene or other thinner etc.! Dirt or fingerprints should **only** be cleaned with a slightly damp, lint-free cloth. Please do **not** use any additional cleaning agents!

4. Cleaning optical parts:
In order to enhance the optical quality, the lenses of eyepieces or objectives are coated. They should not be wiped dry, as dry dirt or dust can scratch the sensitive coating. To clean the objectives, you should unscrew them from the turret. Always blow the loose dust off the lens surfaces first. Use good quality lens cloths or soft cloth slightly moistened with pure alcohol (available from pharmacies) and wipe the lens surface clean.

5. When not in use:
After usage, cover the microscope with the dust cover (made of plastic) and place it where it is dry and mouldless. In the case of non-use for a longer time, you should stow the microscope and the accessories in their correct containers again. We suggest the storage of all objectives and eyepieces in a closed container with drying agent.

Remember: A well maintained microscope will keep its optical quality for years and thus maintain its value.

Disposal

Dispose of the packaging materials properly, according to their type (paper, cardboard, etc). Contact your local waste disposal service or environmental authority for information on the proper disposal.

Do not dispose of electronic devices in the household garbage! As per the Directive 2012/19/EU of the European Parliament on waste electrical and electronic equipment and its adaptation into national law, used electronic devices must be collected separately and recycled in an environmentally friendly manner.

Please take the current legal regulations into account when disposing of your device. You can get more information on the proper disposal from your local waste disposal service or environmental authority.

Warranty & Service

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

You can consult the full warranty terms as well as information on extending the warranty period and details of our services at www.bresser.de/warranty_terms.

CE Declaration of conformity

Bresser GmbH has issued a "CE Declaration of Conformity" in accordance with applicable guidelines and corresponding standards. The full text of the EU declaration of conformity is available at the following internet address:
www.bresser.de/download/5201020/CE/5201020_CE.pdf

UKCA Declaration of conformity

Bresser GmbH has issued a "UKCA Declaration of Conformity" in accordance with applicable guidelines and corresponding standards. The full text of the EU declaration of conformity is available at the following internet address:
www.bresser.de/download/5201020/UKCA/5201020_UKCA.pdf

Bresser UK Ltd.
Suite 3G, Eden House · Enterprise Way
Edenbridge, Kent TN8 6HF · Great Britain