



User Manual

PCE-LCM 50 Digital Microscope



User manuals in various languages (français, italiano, español, português, nederlands, türk, polski, русский, 中文) can be found by using our product search on: www.pce-instruments.com

Last change: 17 December 2019
v1.0



Contents

1	Safety notes	1
2	Delivery scope	1
3	Specifications	2
4	Device description	3
5	Illumination	3
6	Description of user interface	4
7	Troubleshooting	7
8	Warranty	8
9	Disposal	8

1 Safety notes

Please read this manual carefully and completely before you use the device for the first time. The device may only be used by qualified personnel and repaired by PCE Instruments personnel. Damage or injuries caused by non-observance of the manual are excluded from our liability and not covered by our warranty.

- The device must only be used as described in this instruction manual. If used otherwise, this can cause dangerous situations for the user and damage to the meter.
- The instrument may only be used if the environmental conditions (temperature, relative humidity, ...) are within the ranges stated in the technical specifications. Do not expose the device to extreme temperatures, direct sunlight, extreme humidity or moisture.
- Do not expose the device to shocks or strong vibrations.
- The case should only be opened by qualified PCE Instruments personnel.
- Never use the instrument when your hands are wet.
- You must not make any technical changes to the device.
- The appliance should only be cleaned with a damp cloth. Use only pH-neutral cleaner, no abrasives or solvents.
- The device must only be used with accessories from PCE Instruments or equivalent.
- Before each use, inspect the case for visible damage. If any damage is visible, do not use the device.
- Do not use the instrument in explosive atmospheres.
- The measurement range as stated in the specifications must not be exceeded under any circumstances.
- Do not touch the lenses.
- Use the dust cover when the microscope is not in use.
- Non-observance of the safety notes can cause damage to the device and injuries to the user.

We do not assume liability for printing errors or any other mistakes in this manual.

We expressly point to our general guarantee terms which can be found in our general terms of business.

If you have any questions please contact PCE Instruments. The contact details can be found at the end of this manual.

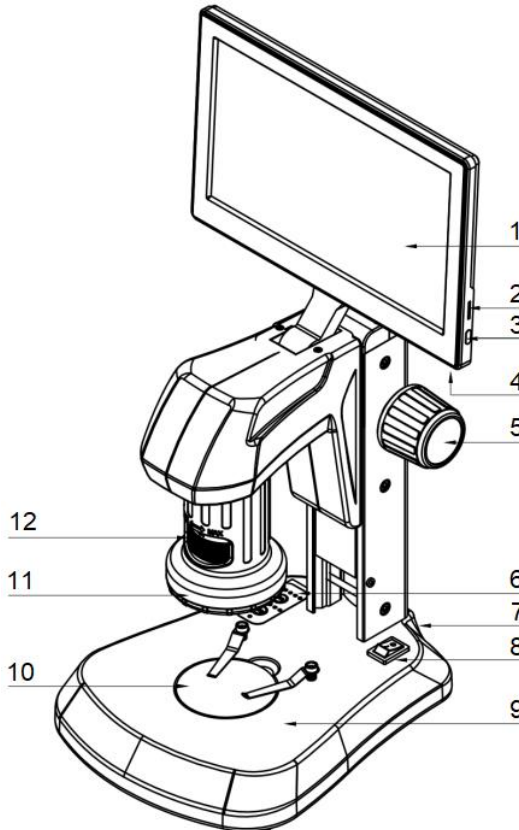
2 Delivery scope

- 1 x Digital microscope PCE-LCM 50
- 1 x USB mouse
- 1 x Micro SD card
- 1 x Protective cover
- 1 x Contrast disc black / white
- 1 x Translucent lens
- 1 x Power supply
- 1 x Protective film
- 1 x User manual

3 Specifications

Optical zoom	8.1 ... 32.4x
Optical lens	1 ... 4x
Barlow	0.3 times
Digital zoom	1 ... 10x
Max. object height	4 cm
Fixed working distance	90.5 mm
Image sensor	1/3", 3MP
White balance	Automatically or by pressing a button
Display resolution	1024 x 600 pixels
Frame rate	30 fps
Pixel size	2.75 x 2.75 μm
Interface	USB 2.0
Power supply mains adaptor	Primary: 100 ... 240V
	Secondary: 12V, 1A
Illumination reflected light	Ring with 21 x 2- mA LEDs, 5 levels adjustable
Illumination transmitted light	7 x 20-mA LEDs, 5 levels adjustable
Environmental conditions	-5 ... 40°C / 23 ... 104°F, 45 ... 85% rh
Dimensions	300 x 225 x 270 mm / 11.8 x 8.9 x 10.6 in
Weight	About 2.3 kg / 5.1 lbs

4 Device description



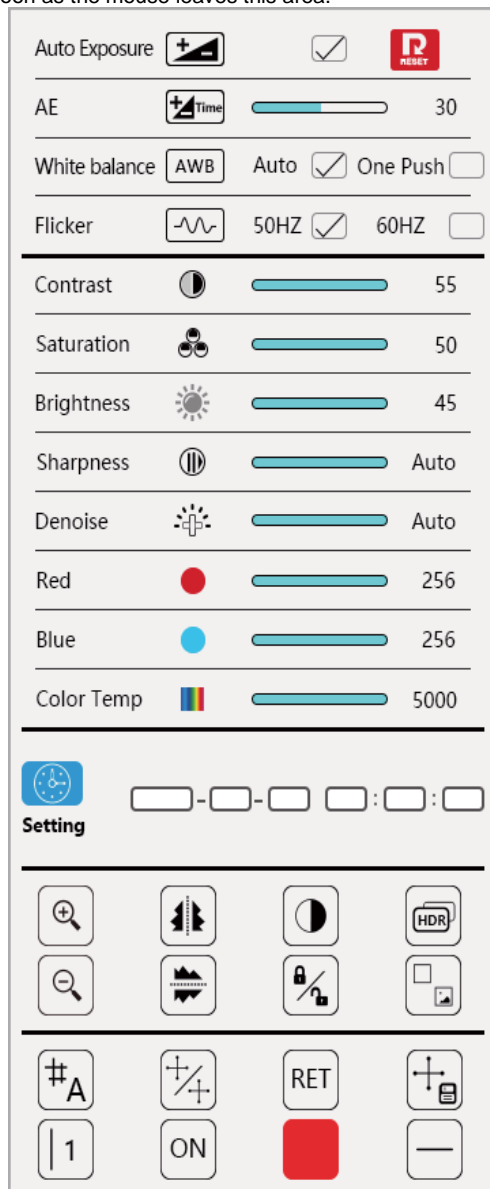
1.	9" display
2.	SD card slot
3.	Display on/off switch (standby)
4.	USB 3.0 interface
5.	Focusing wheel
6.	Illumination setting
7.	Connection for power supply (rear side)
8.	Display on/off switch
9.	Illumination for transmitted light microscopy
10.	Stage
11.	LED ring
12.	Mechanically adjustable zoom

5 Illumination

The microscope is equipped with an incident light illuminator and a transmitted light illuminator with 5 different brightness levels. To set the illumination, use the keys "INC" for incident light and "TRA" for transmitted light.

6 Description of user interface

The microscope has a user interface that opens as soon as the mouse touches the right-hand edge and closes as soon as the mouse leaves this area.






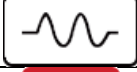











The screenshot shows a settings menu for a microscope. At the top right is a red 'RESET' button. The settings are as follows:







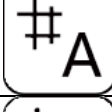
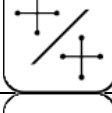



- Auto Exposure:** Includes a plus icon, a checkmark, and a red 'RESET' button.
- AE:** Includes a plus icon with 'Time', a slider bar, and the value '30'.
- White balance:** Includes 'AWB', 'Auto' (checked), and 'One Push' (unchecked).
- Flicker:** Includes a waveform icon, '50HZ' (checked), and '60HZ' (unchecked).
- Contrast:** Includes a half-circle icon, a slider bar, and the value '55'.
- Saturation:** Includes a three-dot icon, a slider bar, and the value '50'.
- Brightness:** Includes a sun icon, a slider bar, and the value '45'.
- Sharpness:** Includes a vertical lines icon, a slider bar, and the value 'Auto'.
- Denoise:** Includes a plus sign with dots icon, a slider bar, and the value 'Auto'.
- Red:** Includes a red circle icon, a slider bar, and the value '256'.
- Blue:** Includes a blue circle icon, a slider bar, and the value '256'.
- Color Temp:** Includes a rainbow icon, a slider bar, and the value '5000'.





Below the sliders is a 'Setting' section with a blue gear icon and a date/time input field: []-[]-[] []:[]:[] [].

At the bottom are several control buttons:

- Zoom in (+) and Zoom out (-)
- Light intensity icons (tree and mountain)
- Half-circle icon and HDR icon
- Lock icon and crop icon
- Aperture (#A), Exposure (+/-), and RET buttons
- Shutter speed (| 1), ON, a red square, and a minus sign (-)

	Automatic exposure time
	Manual setting of exposure time
	White balance Automatic or by keystroke
	Setting of image frequency (50 / 60 Hz)
	Reset settings
	Contrast setting
	Setting the colour brightness
	Setting the brightness
	Setting the contrast of the image edges
	Setting of noise suppression
	Setting of primary colour red
	Setting of primary colour blue
	Setting of colour temperature
	Image zoom
	Flipping image horizontally

	Activating black/white mode
	Activating/deactivating HDR
	Image zoom out
	Flipping image vertically
	Image hold
	Comparison of two live samples
	Measurement lines memory: Up to 8 groups of measurement lines can be saved here.
	Enable/disable all measurement lines
	Reset measurement line settings
	Save measurement line settings made
	Shows the selected measurement line. Possible selections: 8 vertical and horizontal measurement lines, 1 centre point

	Enables/disables the measurement line last selected
	Changes the colour of the measurement line last used
	Changes the thickness of the measurement line last used
	Time indication and setting

7 Troubleshooting

Error	Cause	Solution
The field of view is dirty	Dirt is on the sample	Clean your sample.
	Dirt is on the lenses	Clean the lenses.
Image unclear	Dirt is on the lenses	Clean the lenses.
Illumination does not work when supply voltage is connected	No voltage supply	Examine the mains adaptor.
	Illumination defective	Contact PCE Instruments.
Dark image	Brightness setting too low	Increase brightness setting.
	White balance inefficient	Set white balance manually.
	Angle between display and microscope too wide	Change the angle.
No image displayed	No voltage supply	Examine the mains adaptor and connection.
	Display switch is in off position	Change the display switch position to on.



8 Warranty

You can read our warranty terms in our General Business Terms which you can find here: <https://www.pce-instruments.com/english/terms>.

9 Disposal

For the disposal of batteries in the EU, the 2006/66/EC directive of the European Parliament applies. Due to the contained pollutants, batteries must not be disposed of as household waste. They must be given to collection points designed for that purpose.

In order to comply with the EU directive 2012/19/EU we take our devices back. We either re-use them or give them to a recycling company which disposes of the devices in line with law.

For countries outside the EU, batteries and devices should be disposed of in accordance with your local waste regulations.

If you have any questions, please contact PCE Instruments.



PCE Instruments contact information

Germany

PCE Deutschland GmbH
Im Langel 4
D-59872 Meschede
Deutschland
Tel.: +49 (0) 2903 976 99 0
Fax: +49 (0) 2903 976 99 29
info@pce-instruments.com
www.pce-instruments.com/deutsch

Germany

PCE Produktions- und
Entwicklungsgesellschaft mbH
Im Langel 26
D-59872 Meschede
Deutschland
Tel.: +49 (0) 2903 976 99 471
Fax: +49 (0) 2903 976 99 9971
info@pce-instruments.com
www.pce-instruments.com/deutsch

The Netherlands

PCE Brookhuis B.V.
Institutenweg 15
7521 PH Enschede
Nederland
Telefoon: +31 (0)53 737 01 92
info@pcebenelux.nl
www.pce-instruments.com/dutch

United States of America

PCE Americas Inc.
711 Commerce Way suite 8
Jupiter / Palm Beach
33458 FL
USA
Tel: +1 (561) 320-9162
Fax: +1 (561) 320-9176
info@pce-americas.com
www.pce-instruments.com/us

France

PCE Instruments France EURL
23, rue de Strasbourg
67250 Soultz-Sous-Forêts
France
Téléphone: +33 (0) 972 3537 17
Numéro de fax: +33 (0) 972 3537 18
info@pce-france.fr
www.pce-instruments.com/french

United Kingdom

PCE Instruments UK Ltd
Unit 11 Southpoint Business Park
Ensign Way, Southampton
Hampshire
United Kingdom, SO31 4RF
Tel: +44 (0) 2380 98703 0
Fax: +44 (0) 2380 98703 9
info@industrial-needs.com
www.pce-instruments.com/english

China

PCE (Beijing) Technology Co., Limited
1519 Room, 6 Building
Zhong Ang Times Plaza
No. 9 Mentougou Road, Tou Gou District
102300 Beijing, China
Tel: +86 (10) 8893 9660
info@pce-instruments.cn
www.pce-instruments.cn

Turkey

PCE Teknik Cihazları Ltd.Şti.
Halkalı Merkez Mah.
Pehlivan Sok. No.6/C
34303 Küçükçekmece - İstanbul
Türkiye
Tel: 0212 471 11 47
Faks: 0212 705 53 93
info@pce- cihazlari.com.tr
www.pce-instruments.com/turkish

Spain

PCE Ibérica S.L.
Calle Mayor, 53
02500 Tobarra (Albacete)
España
Tel. : +34 967 543 548
Fax: +34 967 543 542
info@pce-iberica.es
www.pce-instruments.com/espanol

Italy

PCE Italia s.r.l.
Via Pesciatina 878 / B-Interno 6
55010 Loc. Gragnano
Capannori (Lucca)
Italia
Telefono: +39 0583 975 114
Fax: +39 0583 974 824
info@pce-italia.it
www.pce-instruments.com/italiano

Hong Kong

PCE Instruments HK Ltd.
Unit J, 21/F., COS Centre
56 Tsun Yip Street
Kwun Tong
Kowloon, Hong Kong
Tel: +852-301-84912
jyi@pce-instruments.com
www.pce-instruments.cn