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User Manual
PCE-OVM 3D

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Contents

1 Introduction

1.1 Symbols Used

This manual contains symbols also found on the appliance itself with the following meaning:

Danger
Immediate risk of injury. Consult accompanying documents.

Electrical Current
This indicates a risk of injury due to electrical current.

Caution
Risk of damage to the unit if the instruction is not followed.

Notice
A general notice that improves and eases use.

The device complies with applicable EU directives.

Within the EU, this device is subject to the provisions of the directive 2002/96/EC (WEEE directive).

► **List, special attention**
• List
- List

⇒ Instruction / required action / entry / order of tasks:
You are prompted to perform the specified action in the given order.
♦ Result of an action / reaction of the device / reaction of the program:
The device or program responds to your action or because a particular event occurred.

Other symbols are explained when displayed.

2 Safety

2.1 Intended Use

The system is used for digital stereo magnification in 2D and 3D in real time and for documentation.

2.2 Unintended Use

Only spare parts and accessories supplied or authorized by PCE Instruments may be used with this product. If other spare parts or accessories are used, this could have a detrimental effect on the safety of the device, increase the risk of serious injury, and lead to damage to the environment or the device itself.

2.3 Ambient Conditions for Safe Operation

The appliance should only be operated:

- indoors
- up to 2,000 meters (6,562 ft) above sea level
- at an ambient temperature of 5 – 35 °C [41 – 95 °F] *)
- at a maximum relative humidity of 80 % at 31 °C [87.8 °F], linear reduction up to 50 % relative humidity at 35 °C [95 °F] *)
- with mains electricity supply provided that the voltage fluctuation is within 10 % of the rated value
- with Pollution Degree 2
- with Overvoltage Category II

*) The unit can be used at a temperature of 5 – 30 °C [41 – 86 °F] and at a humidity of up to 80 %. At temperatures of
31 – 35 °C [87.8 – 95 °F], the humidity must reduce proportionally to ensure that the unit can be operated (e.g. at 33 °C [91.4 °F] = 65 % humidity, at 35 °C [95 °F] = 50 % humidity). The unit should not be operated at temperatures above 35 °C [95 °F].

2.4 Ambient Conditions for Storage and Transport

For storage and transport, the following ambient conditions must be maintained:

- Ambient temperature of -20 – +60 °C [-4 – +140 °F]
- Maximum relative humidity of 80 %

2.5 Hazard and Warning Notes

2.5.1 General Information

► If the unit is not operated according to this instruction manual, the intended protection cannot be ensured anymore.
► The unit should only be operated using a mains cable with a country-specific plug system. Any modification required should only be carried out by an electrician.
► The unit should only be operated if the data on the type plate corresponds with the data of the regional mains voltage.
► The unit should only be plugged into earthed sockets.
► The mains socket should be easily accessible.
► Disconnect the unit from the mains before working on electrical parts.
► Regularly check connecting cables (such as power cables), hoses, and housing (for example, the control panel) for damage (for example, kinks, tears, porosity) or deterioration due to aging. Do not operate units with damaged connection cables, hoses, or housing parts, or other defects.
► Damaged equipment must be taken out of service immediately. Disconnect from mains and secure against being switched on again. Send the device in for repair.
► Operate the equipment only under supervision.
► Observe national accident prevention regulations.
► It is the responsibility of the operator that national regulations during operation and regarding a

repeated safety inspection of electrical equipment are complied with. For Germany, these are the regulation 3 by DGUV (German Statutory Accident Insurance) in relation with VDE (Association for Electrical & Electronic Technology) 0701-0702.

2.5.2 Specific Information

- **Do not look into the lighting.**
- **As with all optical magnification systems, working with the system for long periods of time can lead to symptoms of fatigue. Take breaks regularly.**
- **The 3D glasses do not replace protective eye equipment in any way.**

Further safety instructions for the monitor can be found in Chapter 6.

2.6 Approved Personnel

The device may only be operated and maintained by trained personnel.
Repairs that are not specified in this operating manual should only be carried out by an electrician.

2.7 Liability Exclusion

PCE Instruments is not liable for claims for compensation or claims under guarantee if:

- **the product is used for purposes other than those stated in the operating instructions.**
- **the product is modified in any way – apart from modifications described in the operating instructions.**
- **the product has not been repaired by a specialist firm or original PCE replacement parts have not been used.**
- **there is continued use of the product despite obvious safety defects or damage.**
- **the product has been subjected to mechanical knocks or has been dropped.**

3 Product Description

3.1 General Description

The PCE-OVM 3D system consists of a head with two cameras, a lighting, an image processing unit, and a 3D-capable monitor including two pairs of 3D glasses.

For easy operation, the head is mounted on an adjustable support arm.

3.2 Assemblies and Functional Elements

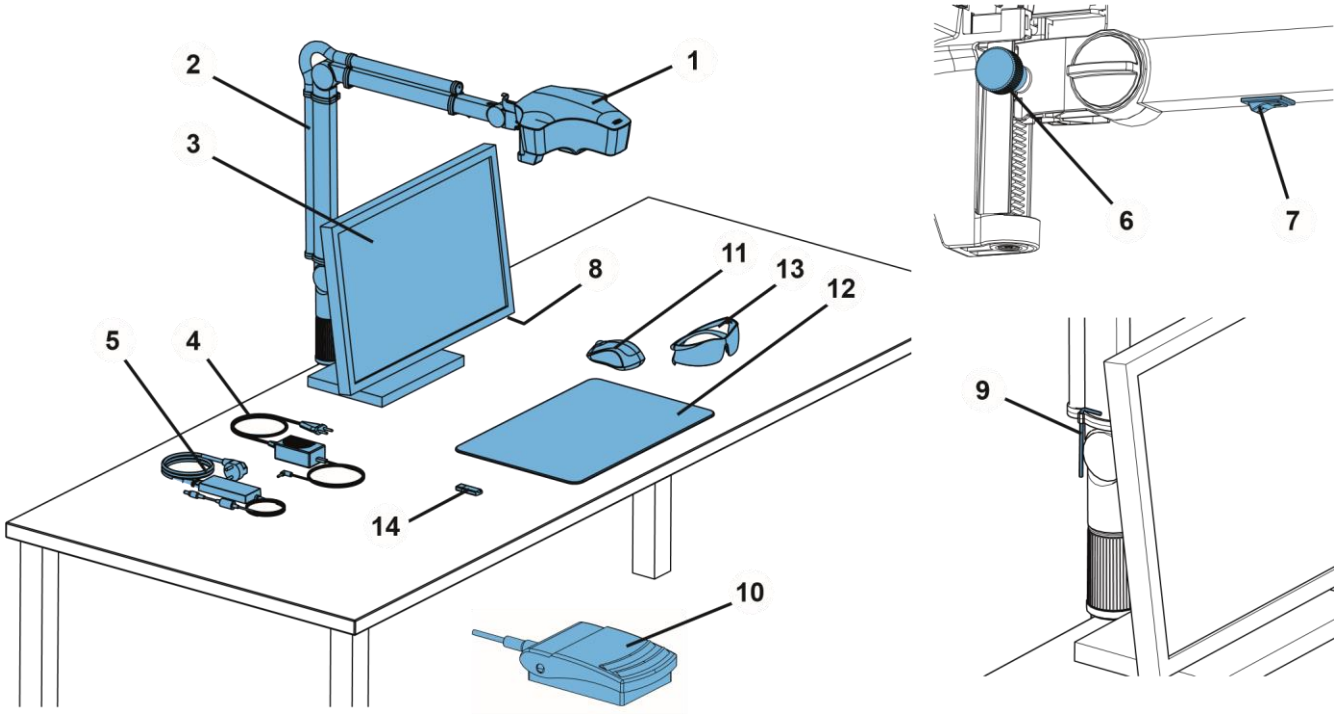


Fig. 1

1 Head
2 Supporting arm with base
3 Monitor
4 power supply
5 Monitor power supply
6 Height adjustment (focusing)
7 On/off switch
8 On/off switch monitor
9 Tool for clamping force adjustment (Allen key)
10 Foot switch
11 Mouse
12 Desk pad (not included)
13 3D glasses
14 USB memory stick

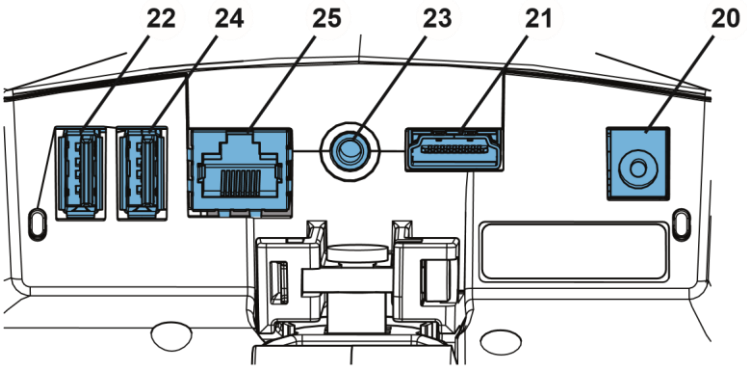


Abb. 2

Connections

20 Power supply
21 HDMI output
22 USB port for USB memory stick
23 Foot switch
24 USB port for mouse
25 Network

3.3 Scope of Delivery

3.3.1 PCE-OVM 3D

1 PCE-OVM 3D head with power supply unit and power cord
1 support arm with cable and base with universal clamp
1 3D-capable monitor with power supply unit and power cord
2 pairs of 3D glasses
1 USB memory stick
1 mouse
1 foot switch
1 quick start guide “Getting Started”
on the optional accessories, please see chapter 7.)

4 Commissioning

4.1 Unpacking

⇒ Remove the device and accessories from the shipping box.
⇒ Check the delivery for completeness (compare with the scope of delivery).

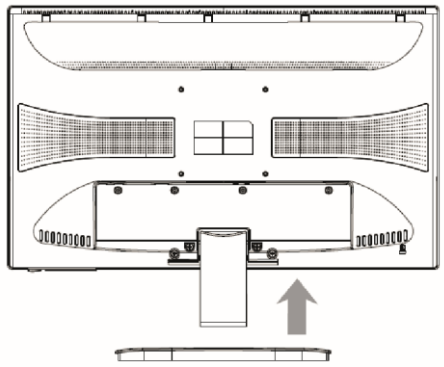


Fig. 3

4.2 Mounting the Monitor Stand

⇒ Place a soft pad on a flat surface.
⇒ Place the monitor on the pad, the screen facing down.
⇒ Remove the protective film from the stand.
⇒ Attach the supplied stand to the monitor support.

4.3 Setup

Select a workspace with sufficient lighting for the installation of the PCE-OVM 3D system. If fluorescent light is used, it may be necessary to reduce the light emission. Reflections of extraneous light on the object may result in interferences.
⇒Place the desk pad (12, Fig. 1) on the working table.

The surface structure and color of the desk pad have been selected to reduce irritation to the eye, which could occur with a structured surface.

4.3.1 Mounting the Support Arm

The support arm should preferably be mounted on the back or side of the table top, at least 400 mm (15.75 in) away from the front edge.
This makes it possible to optimally utilize the entire swiveling range of the support arm.

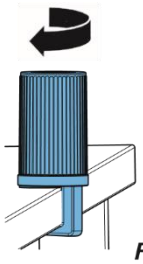


Fig. 4

⇒ Mount the base with the universal clamp on the back or side of the work table (Fig. 4).
The universal clamp is suitable for tables with a slab thickness of 18 – 74 mm (0.71 – 2.91 in). Refer to chapter 3.4 for more mounting options.
⇒ Insert the support arm (2) into the base. Make sure that the red plastic disc (30) is placed between the base and the support arm.

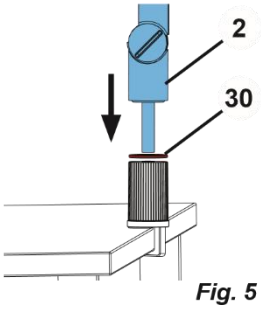


Fig. 5

The power supply cable for the head is integrated into the support arm; the cables for the mouse, foot switch, and monitor have already been guided through the cable channel on the back of the support arm.

⇒ Place the mouse (11, Fig. 1) next to the desk pad.
⇒ Place the foot switch (10, Fig. 1) under the table and insert the cable for the foot
switch into the foot switch.

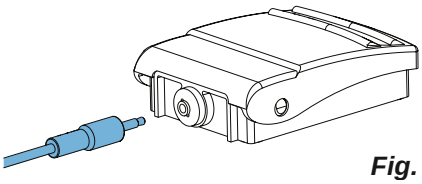


Fig. 6

4.3.2 Mounting the Head

Four washers are needed for mounting the head (see Fig. 7).
Three small washers (golden/black/golden) have already been threaded onto the fastening screw (31) in the correct sequence. The large washer is attached to the head with an adhesive strip with a red end.

⇒ Remove the adhesive tape with the red end.
⇒ Loosen the fastening screw (31) on the support arm.
⇒ Attach the fastening screw with all three small washers through the adapter of
the head.
⇒ Make sure that the three small washers (golden/black/golden) and the large
washer are in the correct order as shown in the figure.
⇒ Insert the adapter with the fastening screw and tighten the fastening screw until the head no longer tilts downward.

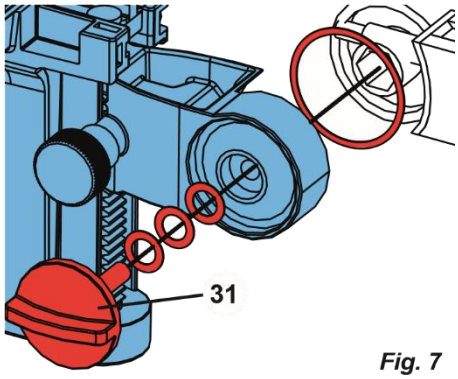


Fig. 7

4.3.3 Positioning the Monitor

⇒ Position the monitor so that it is directly in the field of view. The distance to the observer should be between 50 and 70 cm (19.69 – 27.56 in).
⇒ Align the monitor (tilt, rotate using stand) so that the viewing direction is perpendicular to the monitor in all planes (Fig. 8/9).

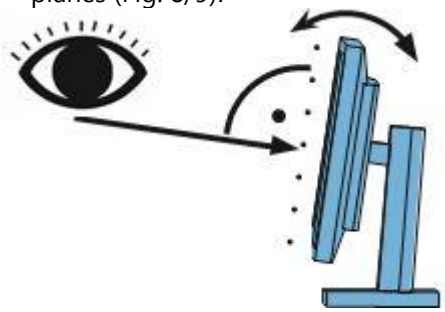


Fig. 8

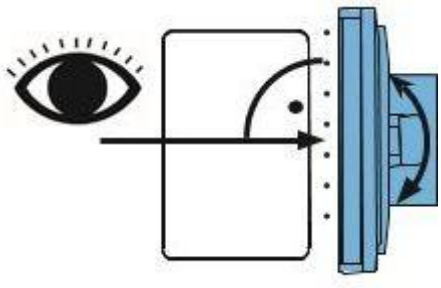


Fig. 9

4.3.4 Adjusting the Clamping Force

In order to achieve a stable position of the head, the clamping forces of the three joints can be adjusted individually.

• Support arm
- Fasten the screw at the head (32).
- Middle clamping screw (33)
- Clamp screw on base part (34)

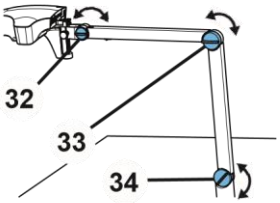


Fig. 10

• Swiveling the head right/left
- Clamping screw (35) with the included tool (9, Fig. 1)

• Height adjustment
- Clamping screw (36) with the included tool (9, Fig. 1)

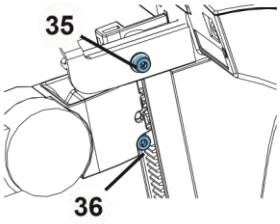


Fig. 11

4.4 Electrical Connection

Several plugs and related connector sockets are marked with a color coding. When connecting the components, make sure that the color coding matches. Improperly connected components can be damaged by too high voltage.

4.4.1 Connections on the Head

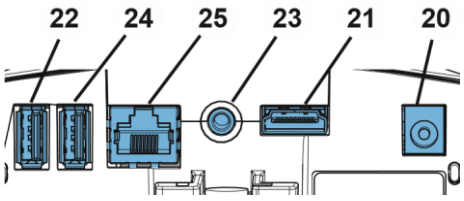


Fig. 12 a

The cables are connected at the back of the head.
⇒ Monitor cable ==> HDMI connection (21).
Plug the HDMI cable (36) into the retaining clip and then plug it straight into the
socket.
⇒ Foot switch cable ==> connection (23).
⇒ Mouse cable ==> connection (24).
⇒ USB memory stick ==> connection (22).
⇒ Network extension cable ==> connection (25).

⇒ Power supply of the head (integrated into the support arm) ==> connection (20).

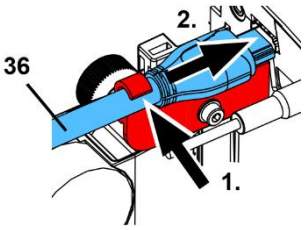


Fig. 12b

4.4.2 PCE-OVM 3D Head Power Supply

The PCE-OVM 3D power supply (4, Fig. 1) has a cable with an angled jack plug (37).
⇒ Plug the jack into the socket at the cable of the power supply, which protrudes at the base of the support arm.
Make sure that the color coding of the connection cable and socket matches.

Never plug the jack plug into the connection for the foot switch (23, Fig. 12). This will destroy the head.

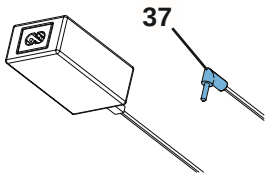


Fig. 13

⇒ Insert the power cord into the power supply unit and into the building wall socket.

4.4.3 Connecting the Monitor

⇒ Monitor cable ==> DVI input of the monitor (41).
⇒ Secure plug with integrated screws.
⇒ Power supply ==> DC 12 V (40). The monitor power supply (5, Fig. 1) has a cable with a hollow plug.

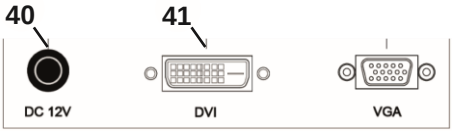


Fig. 14

Ensure that the color coding of the connection cable and the socket matches.
⇒ Insert the power cord into the power supply unit and into the building wall socket.

5 Operation

5.1 Switching On

⇒ Switch on the monitor by pressing the power button (8, Fig.1).
⇒ Switch on the head using the power switch (7, Fig. 1).
♦ The lighting starts operation.
♦ **After about 20 seconds**, an image appears on the monitor.
The cone of light on the table top defines the area whose center is captured by the optics.

5.1.1 Stand-By

If there is no movement below the head for more than 10 minutes and the mouse has not been moved for more than 10 minutes, the lighting and the monitor output are switched off. The monitor's power button (8, Fig. 1) flashes in this case. The stand-by mode is ended when the mouse is moved or movement takes place in the detection range of the optics.

5.2 Adjusting the Monitor

In most cases, the monitor can be used with its basic settings.

5.3 Adjusting the Focus

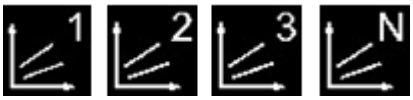
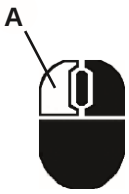
There are two options for focusing the image:

- Coarse adjustment by moving the head with the support arm
- Fine adjustment through height adjustment (6, Fig. 1)

The amount of force required for the movement of the support arm, head, and height adjustment can be adjusted using the fastening and clamping screws, see Chapter 5.4. The following procedure is recommended:
⇒ Align the head parallel to the table.
⇒ Place the object on the desk pad within the cone of light.
⇒ Set the head to the middle of the height adjustment.
⇒ Set the head on the support arm so that the object can be seen on the monitor and, if necessary, adjust the height adjustment.
This allows you to quickly correct the focus for objects with different heights.

5.4 System Settings

The current settings of the system are displayed on the monitor at the bottom left.
As soon as the mouse is moved, the monitor displays the available settings and with which element of the mouse the setting can be changed.

System Settings		
2D/3D Display	Magnification (15x, 20x, 25x, 30x)	Object Mode (1, 2, 3, neutral, see Chap. 5.4.1)
		
Changing the System Settings		
		
⇒ Left mouse button (A) ♦ Switch between 2D and 3D Display.	⇒ Mouse wheel (B) rotation forward/backward ♦ Switch magnification between 15x, 20x, 25x, and 30x). ⇒ Press/rotate the mouse wheel (B) ♦ Adjust the brightness of an object mode (see Chapter 5.4.1).	⇒ Right mouse button (C) ♦ Switch between object modes.

5.4.1 Object Modes – Adjusting the Brightness of the Image

The object modes are customized for different materials of the respective objects:

- 1-3: stored modes for different applications
- Neutral

For the object modes 1, 2, and 3, image processing is performed internally, improving the image quality with respect to reflections and color reproduction.

Different parameters are stored for each object mode, including the individual image brightness. This can be changed.
To do so:
⇒ Select the object mode to be modified (see Chapter 5.4).
⇒ Press the mouse wheel (B).

♦ A setting bar appears, where the current image brightness is displayed. ⇒ Turn the mouse wheel to change the brightness.

⇒ Turn the mouse wheel to change the brightness.

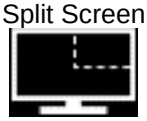
♦ Darker • • • Brighter

♦ The “zero position” corresponds to the factory setting.

5.5 Menu

By pressing and holding down the right mouse button, you open the menu. In the menu, you can adjust the settings for split screen, USB stick, image representation, lighting, etc.

Navigation Menu				
				
⇒ long press on right mouse button (C) (in the main window) ♦ Open the menu	⇒ short press on left mouse button (A) ♦ Select a menu item	⇒ Scroll mouse wheel (B) forward or backward ♦ Navigate between the menu items	⇒ short press on right mouse button (C) ♦ Return to the parent menu	⇒ long press on right mouse button (C) (in the menu) ♦ Leave the menu

Main Menu Items				
Split Screen 	USB 	Black/White 	Settings 	Exit 
Split screen menu	USB menu	Image display color / black and white	General settings	Exit the menu

5.5.1 Split Screen

Via the split screen menu, you can have a static image permanently displayed on the monitor. You can choose between loading an image from the USB stick or displaying a screen shot of the current live image of the camera.

The following symbol appears at the bottom of the screen when the split screen mode is activated:

Split Screen Menu Items				
				
Load image from USB stick	Load live image	Change split screen settings	Turn split screen off	Leave menu

USB

Select this menu item to have an image from your USB stick displayed. After clicking on the symbol, a list of the files on the stick opens. Selectable files are displayed white; non-selectable files are displayed gray. Please note that only images in the *.bmp format can be displayed.
When you hold the bar over a file name for approx. 2 seconds, a preview of the image is displayed. After you select a file, you have the following options:

 Display the image in 2D.  Display the image in 3D (only possible if the file contains 3D image information). Note: 3D images can only be displayed in full-screen mode.	 Delete the image.	 Leave the menu.

The selected file is displayed red in the list.

Live Image

Select this menu item to have a screen shot of the live image displayed.

Note: 3D images can only be displayed in full-screen mode. Therefore, a screen shot of the live image can only be displayed in 2D in the split screen. However, you can save screenshots of 3D images via the foot switch. See chapter 5.6.

Split Screen Settings

Here you can select how the split screen image is displayed. You can adjust the position of the window (top left or top right of the monitor) as well as its size.

Menu Items Split Screen Settings	
 Position	 Size
 The split screen image is displayed in the top left of the monitor.  The split screen image is displayed in the top right of the monitor.	 The split screen image is displaed in full-screen mode. (1/1)  The split screen image takes up half the length and width of the screen. (1/2)  The split screen image takes up 3/8 of the length and width of the screen. (3/8)  The split screen image takes up 1/4 of the length and width of the screen. (1/4)  The split screen image takes up 1/8 of the length and width of the screen. (1/8) Note: 3D images can only be displayed in full-screen mode.

5.5.2 USB

Note: This sub-menu has the same functions as the sub-menu “USB” in the split screen menu.
Select this menu item to have an image from your USB stick displayed. After clicking on the symbol, a list showing the files on the stick opens. Selectable files are displayed white; non-selectable files are displayed gray. Please note that only images in the *.bmp format can be displayed.
When you hold the bar over a file name for approx. 2 seconds, a preview of the image is displayed. After you select a file, you have the following options:

 Display the image in 2D.  Display the image in 3D (only possible if the file contains 3D image information). Note: 3D images can only be displayed in full-screen mode.	 Delete the image.	 Leave the menu.

The selected file is displayed red in the list.

5.5.3 Black/White

In this menu, you can choose whether the live image and/or the split screen image are displayed in color or black and white.

Black/White Menu Items			
			
Live image in color Split screen image black and white	Live image black and white Split screen image in color	Live image black and white Split screen image black and white	Live image in color Split screen image in color

5.5.4 Settings

In the general settings, you can switch the lighting on and off, switch between 2D and 3D image saving mode and query information about PCE-OVM 3D.

Settings Menu Items		
		
Lighting	Saving in 2D/3D	Information
 The lighting is switched on.  The lighting is switched off.	 Screen shots are always saved in 2D, independently from the general image display mode.  Screen shots are saved in 3D if the 3D image display mode is enabled. Note: 3D images can only be displayed in full-screen mode. Saving a 3D image takes twice as long as saving a 2D image.	You can query the following information here: • Firmware type (2D or 3D) • Firmware version • Operating time • IP address (when used in a network) • Host name (when used in a network)

5.6 Screen Shot / Still Image

Using the foot switch, the monitor image can be frozen (still image) or also stored on the USB memory stick (screen shot).

5.6.1 Still Image

⇒ Press the foot switch for more than 1 sec.
- ♦ The still image is displayed, meaning the monitor image is frozen.

While the still image is displayed, the following actions can be performed:
⇒ Briefly press the foot switch.
- ♦ The screen contents are saved to the USB stick as a screen shot.

⇒ Press the foot switch for more than 1 sec.
- ♦ Switch back to the live image.

The following settings can be changed while the still image is displayed:
- Switch between 2D and 3D display
- Switch magnification between 15x, 20x, 25x, and 30x.

When a still image is displayed on the screen, it is indicated by the following snowflake symbol:

5.6.2 Saving a Screen Shot

⇒ Briefly press the foot switch.
- ♦ The screen contents are saved to the USB stick as a screen shot.
- ♦ The screen shot icon appears on the monitor.
- ♦ The file name is displayed on the monitor during the save operation.
- ♦ No other actions are possible during the save operation (approx. 5 sec in 2D; approx. 10 sec in 3D)

The file name has the following format:
- IMGxxx.bmp
- with xxx = sequential counter 000 to 999

If the USB memory stick is then connected to a PC, the file names can be changed as usual, e.g. to assign them to a customer.

5.7 Working with 3D

After switching to the 3D display, a 3D image is generated on the monitor.
When working in 3D, the 3D glasses must be worn.
Looking at the 3D image without 3D glasses (for example, over the shoulder of another person) is very strenuous and not recommended.

When working in 3D mode, it is important that the monitor is aligned correctly.
The monitor should be perpendicular to the viewing direction. Refer to Chapter 4.3.3.

6 Monitor

PCE Instruments recommends not changing the factory settings of the monitor as the basic settings for PCE-OVM 3D.

6.1 Safety Instructions

Commissioning
► Do not close off the ventilation openings.
► Place the monitor in a well-ventilated place to avoid overheating.
► Only use accessories specified by the manufacturer or included with the monitor.
► Select a location where the monitor will not be exposed to extreme temperatures, high humidity, direct sunlight, or dusty environments. Avoid proximity to equipment that generates strong magnetic fields.
Water and moisture
► Do not operate the monitor near water. To reduce the risk of fire and electric shock, do not expose the monitor to rain or moisture.
Power cord and power cord connection
► Install the power cord so that it will not be walked on or damaged. Note the location of the cables, plugs, sockets, and of the connector at the monitor.
Product care
► Do not touch the screen directly with your fingers. Grease from the skin may leave fingerprints on the screen, which are difficult to remove and can damage the screen. Do not put any pressure on the screen.
Cleaning
► Clean only with a dry cloth.
Repair
► Do not repair the monitor yourself. High voltages are exposed when the cover is opened or removed. There is danger of electrical shock. Repairs must be carried out by qualified personnel only.
Lightning strike
► For extra safety during a thunderstorm, or when the monitor is left unattended or unused for a long time, unplug the power cord of the power supply and the monitor cable. This prevents damage to the monitor due to lightning strikes and power surges.
Mains connection
► Do not remove the ground or the protective conductor connection from the mains plug of the power supply unit.
► Unplug the power supply unit when the monitor is not used for an extended period of time, or if the power cord, power plug, or monitor housing is damaged.
Caution
► Do not try to open the product. Any attempt to open the product or remove the cover will void the warranty and may result in serious injury.

6.2 Connections

40 DC 12 V 3.33 A
41 DVI input
42 VGA input

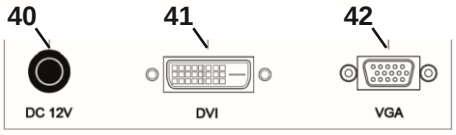


Fig. 17

6.3 Operation and Settings

8 Power switch

43 MENU, opens the monitor menu.

44 Signal source selection. Reduce the selected value in the monitor menu.

45 Adjust brightness. Increase the selected value in the monitor menu.

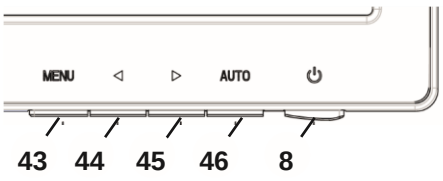


Fig. 18

46 AUTO, automatic horizontal and vertical adjustment of the image. It also exits the monitor menu.

6.4 Monitor Menu

Color

Contrast
Adjust screen contrast (difference between light and dark regions of the image).

Brightness
Adjust the image brightness.

Color Temp
Select between different, preset color temperatures or set your own custom parameters (9300/6500/5500/USER).

Auto Adjust (not selectable).
Color Adjust (not selectable).

Fig. 19

Image

The settings under this menu item are fixed and cannot be changed.
The menu item cannot be selected.

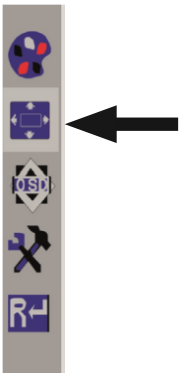


Fig. 20

Monitor Menu

Language
Select the language for the monitor menu (English, French / German / Italian / Russian / Spanish / Portuguese / Japanese / Korean / Traditional Chinese / Simplified Chinese).
Horizontal position of the monitor menu (QSD H-Pos.)
Adjust the horizontal position of the monitor menu (left or right).
Vertical position of the monitor menu (QSD V-Pos.)
Adjust the vertical position of the monitor menu (up or down).
Monitor menu time setting (QSD Timer)
Set the time that the monitor menu is displayed (3 - 60 seconds).
Transparency
Adjust the transparency of the monitor menu.

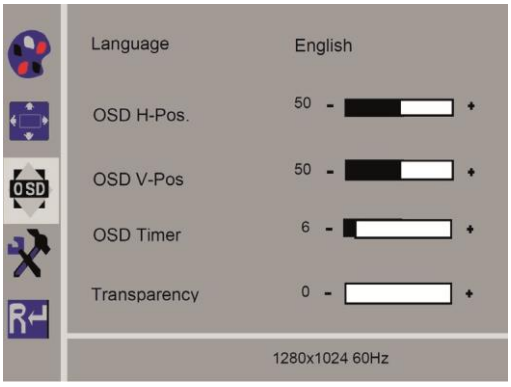


Fig. 21

Other

Picture mode (Mode)
Select the picture mode (PC/games/movie)
Audio Volume – NOT available
Adjust the volume.
Signal Source
Select the signal source (VGA/DVI).
Select DVI for use with the PCE-OVM 3D system.
Aspect Ratio
Select the aspect ratio (16:9/AUTO/4:3).
DCR
Select DCR (Dynamic contrast ratio) (on/off).

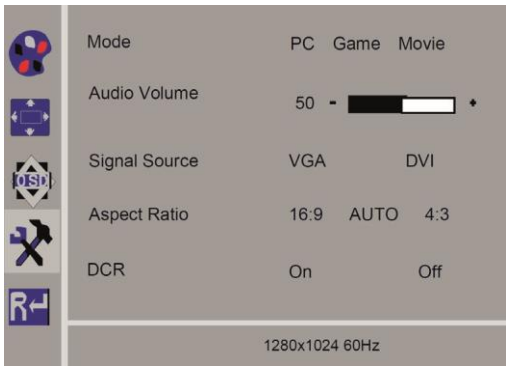


Fig. 22

Reset

Reset
Reset the monitor settings to the PCE Instruments factory settings.

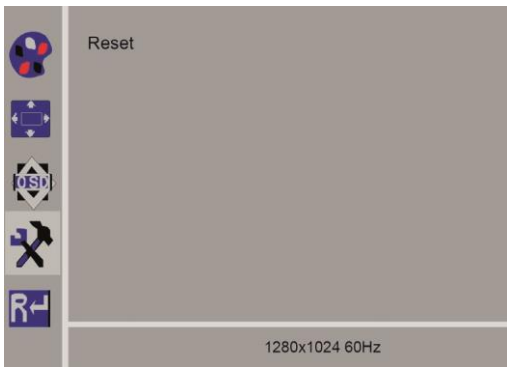


Fig. 23

Self-Diagnosis

If there is no image, a self-diagnosis window is displayed.
The self-diagnosis function checks whether a signal is present.
“No Input Signal” is displayed when the D-Sub connector is plugged in, but the monitor is in DPMS mode, or when the analog signal cable is not plugged in.

Fig. 29

7 Cleaning / Maintenance

The device does not contain any internal parts that require maintenance.

Only wipe the housing with a damp cloth. Use only a slightly moistened cloth.
Do not use any spray or disinfectant or other cleaning agents.
Do not use compressed air for cleaning.
Clean monitor only with a dry cloth.
Due to the natural product used, the desk pad may build an oily coat. It is possible to wipe it off with a grease-dissolving cleaning agent such as a commercially available dishwashing liquid.

7.1 Cleaning the Lighting

CAUTION.
Risk of getting burned by hot lenses of the lighting.
Clean only when the unit is switched off and has cooled down.

Do not clean the lenses of the lighting with cleaning agents.
Clean only with a slightly moistened cloth.

7.2 Cleaning/Replacing the Protective Glass

The camera optics are protected by a protective glass, which can be removed for cleaning and replacement.

CAUTION.
Risk of injury if broken.
Do not bend protective glass; it may break. Wear protective goggles and protective gloves.

CAUTION.
Danger of being temporarily blinded if lighting is turned on suddenly.

⇒ Disconnect the power supply from the head (20, Fig. 2).
⇒ Tilt the head upwards.
⇒ Push in the tab on the underside.
⇒ Pull the protective glass out.
⇒ Clean/replace the protective glass.
⇒ Push in the protective glass until the tab latches in again
When sliding the safety glass:

- Do not allow it to get wedged.
- Do not bend.
- Use a cloth to avoid fingerprints.

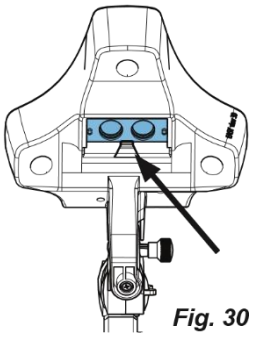


Fig. 30

7.3 Removing the Cable from the Cable Duct / Guiding It into the Cable Duct

For various reasons – for example, when connecting an HDMI video recorder – it may be necessary to remove cables from the cable duct on the support arm or insert new ones. See also the illustrated instructions in chapter 7.1 in “Getting Started”.

The cable of the power supply of the head is integrated into the support arm and cannot be removed.

7.3.1 Removing Cables

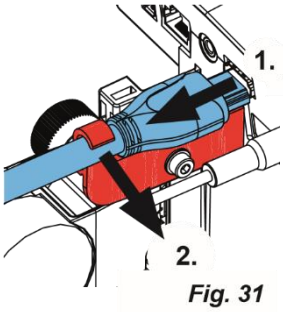


Fig. 31

⇒ With the exception of the power supply (20, Fig. 12), remove all connectors from the head.
⇒ Pull the HDMI cable straight out of the back and then remove it from the retaining clip.
⇒ Remove the cable duct from the support arm.
⇒ Remove the retaining clip.
⇒ Remove the cable tie at the foot end of the cable duct. Make sure that no cables are damaged.
⇒ Pull the desired cable out through the ribs of the cable duct.

7.3.2 Inserting Cables into the Cable Duct


Fig. 32

Two retaining clips are designed as insertion aids for inserting new cables.
⇒ Place the cable duct on a flat surface.
⇒ Use the insertion aid to grab the cables that are already in the cable duct.
⇒ Press the insertion aid together completely.
⇒ Push the insertion aid 3 or 4 ribs deep into the cable duct with the tapered end first.
⇒ Feed the plug of the cable you want to insert through the insertion aid and press the cable into the cable duct that has been opened by the insertion aid.

Make sure that the plug is inserted from the correct side.

⇒ Hold the cable duct securely behind the insertion aid.
⇒ Pull the insertion aid and the plug of the cable to be inserted through the cable duct to the other end. Make sure that the plug does not slip out of the insertion aid.
⇒ Remove the insertion aid.
⇒ Pull the cables through so that they protrude approx. 20 cm (7.9 in) past the cable duct at the side of the PCE-OVM 3D head so that the head is not hindered when it pivots.
⇒ On the opposite side of the cable duct, secure the cables to the cable duct with cable ties so they cannot slip.
⇒ Clip all the retaining clips onto the cable duct and secure the cable duct to the support arm.

Retaining clips designed as an insertion aid fit on the upper part of the support arm; the other clips go on the lower part.

⇒ Insert the cables into the head.
⇒ Plug the HDMI cable into the retaining clip and then plug it straight into the socket.
⇒ Reconnect the other side of the cables.
Multiple cables can also be fed through together.

7.4 Spare Parts

If you should need any spare parts for the PCE-OVM 3D, please contact our technical support at +49 23 8098 7035 or info@pce-instruments.co.uk.

8 Troubleshooting

Error	Cause	Solution
Image cannot be focused.	• Display switched to 3D and no 3D glasses used.	• Switch to 2D. • Use 3D glasses.
Focus moves.	• Head moves down on its own.	• Retighten the clamping screw for height adjustment (36, Fig. 11) (see Chapter 4.3.4).
Light cone moves.	• Head folds down on its own.	• Retighten fastening screw (32, Fig. 10) (see Chapter 4.3.4).
No lighting.	• The system is in stand-by mode.	• Move mouse or move hand under the cameras.
No network access to USB stick.	• No network cable connected to the network extension cable • IP address has been changed.	• The network cable used to connect to a switch or router is not included. • Make sure that the IP address displayed on the screen matches the one entered in the transfer program.
No 3D image can be seen.	• No 3D glasses used. • Monitor poorly aligned. • 3D calibration changed.	• Put on 3D glasses. • Align the monitor so that the view is perpendicular to the monitor (see Chapter 4.3.3). • Calibrate the display. See the instructions included in PDF format.
Head without function.	• The PCE-OVM 3D power supply unit was plugged into the foot switch connection.	• Connect the power supply unit and foot switch correctly, observing sections 4.4.1 and 4.4.2. • If the head is still without function after correct connection, it was damaged by the previous incorrect connection. • Please contact PCE Instruments service.
Monitor displays image errors / stripes.	• Cable plugs have come loose. • Non-PCE cable used.	• Check the cable and screw the DVI plug into the monitor. • Use PCE Instruments cable.
Head lowers by itself.	• The fastening screw (31, Fig. 7) is not fastened tight enough.	• Retighten the fastening screw.
Support arm can be swiveled away too easily or swivels away by itself.	• The supporting surface of the universal clamp is uneven.	• Make the universal clamp even and level. • Attach an adhesive tape strip to the aluminum pin of the support arm (under the black plastic sleeve).

PCE-OVM 3D HDMI Splitter		
No 3D image on a connected PC monitor.	• No error. With the PCE-OVM 3D HDMI splitter, only 2D images are displayed on PC monitors.	• Switch PCE-OVM 3D to 2D image view. • If a 3D display is required, use another PCE Instruments 2D/3D monitor (optional accessory).
No image on additional 2D device.	• 2D device is not capable to display Full HD. • Incorrect device settings.	• Use full-HD-capable PC monitor. • Use the PCE Instruments 2D/3D monitor (optional accessory). • Check 2D device settings (e.g.: 1080p60).
No image displayed on the connected TV device.	• No error. Only PCE Instruments 2D/3D Monitors or PC monitors can be connected to the HDMI splitter.	• Use full-HD-capable PC monitor. • Use the PCE Instruments 2D/3D monitor.

PCE-OVM 3D HDMI Tutor		
No 3D image can be viewed on the PCE Instruments 2D/3D monitor.	• 2D/3D connections mixed up.	• Make sure the PCE Instruments 2D/3D Monitor is connected to the 3D port and the additional 2D device is connected to the 2D port.
No 3D image is displayed on the connected TV device.	• No error. Only 2D images can be displayed on TV devices.	• If a 3D display is required on a different monitor, use the PCE-OVM 3D HDMI splitter together with a second PCE Instruments 2D/3D monitor (optional accessory).
No image displayed on the connected 2D device.	• 2D device is not capable to display Full HD. • Incorrect device settings. • Incorrect signal input is set on 2D playback device.	• Use a full-HD-capable 2D device. • Check 2D device settings (e.g.: 1080p60). • Check settings. Consult the manual of the 2D device if necessary.

9 Technical Data

9.1 Head (Incl. Support Arm)

Nominal voltage:	100 / 120 / 230 V
Permissible mains voltage:	100 – 240 V
Mains frequency:	50 / 60 Hz
Power consumption:	132 W
Video resolution:	Full HD (1920 x 1080)
Focus distance:	430 mm [16.93 in]
Magnification:	15x / 20x / 25x / 30x
Approx. illuminance:	40,000 lux
Color temperature:	5,000 kelvins
USB memory stick capacity:	4 GB
Number of storable images, approx.:	600
Max video sequence length, approx.:	15 minutes
Max distance between mounting point of support arm and screen center:	615 mm [24.21 in]
Action radius of support arm:	850 mm [33.46 in]
Max table top thickness with universal clamp:	18 – 74 mm [0.71 – 2.91 in]
Max table top thickness with screw mounting:	Max. 26 mm [1.02 in]
Weight (incl support arm):	2.1 kg [4.63 lbs]
Weight (Head):	0.7 kg [1.54 lbs]

9.2 Monitor

9.2.1 Monitor PCE-OVM 3D

Nominal voltage:	100 / 120 / 230 V
Permissible mains voltage:	100 – 240 V
Mains frequency:	50 / 60 Hz
Power consumption:	25 W
Screen resolution:	1920 x 1080 pixels
Dimensions with stand (width x height x depth):	511 x 377 x 170 mm [20.12 x 14.84 x 6.69 in]
Diagonal screen size:	546.1 mm [21.50 in]
Weight (incl. power supply):	3.65 kg [8.05 lbs]

10 Guarantee

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

11 Disposal Instructions

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.

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