

Operating Instructions

ERSASCOPE 2

Optical Inspection System



CE

BA 00106 / 00

ERSA GmbH

Optical Inspection Division

A **Kurtz** Company

ERSASCOPE 2

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Thank you for choosing to buy an ERSASCOPE 2 inspection system.

All components of this device were manufactured and tested according to the highest quality standards. Operation of the device is easy and quick to learn. Nevertheless, we recommend that you carefully read these Operating Instructions before using the device for the first time. Please contact us if you have any further questions:

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1 Introduction

Your ERSASCOPE 2 is an innovative product that will meet all your visual inspection needs. We wish you much success in working with this inspection device, and we appreciate the trust you have shown in purchasing the system.

ERSASCOPE 2 inspection devices form a family of products. Given your requirements, you'll find this line of products contains the optimal solution, while also allowing you to upgrade your system by purchasing further products later on for new tasks.

Indeed, the ERSASCOPE 2 product family offers solutions from standard video microscopy and top view inspection with high magnification to the inspection of concealed elements with the world's smallest inspection head. These optical possibilities are joined by the extraordinary flexibility of the mechanical adjustment, for viewing from unusual angles.

All components have antistatic surfaces.

The Operating Instructions describe the scope of delivery, getting started and the operation of the devices. Should you still have questions, our Service Department will be glad to help.

Please note the following symbols. They will facilitate your use of this manual.



This symbol precedes notes on safety that are essential to read. Injuries may occur if you fail to heed these safety notes.

Attention!

This precedes information that you ignore at the risk of damaging your equipment.

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2 Technical data

Generally applicable environmental data:

Operating temperature: 0 to 40 °C
Air humidity: 0 to 80%

ERSASCOPE 2 stand:

Dimensions: Width approx. 500 mm
Depth approx. 520 mm
Height approx. 400 mm
Total weight: approx. 5 kg
Surface: antistatic design

with power supply unit

Supply voltage: 90 - 264 V~, 50/60 Hz
Output voltage: 12 V - / 1.3 A
Weight: approx. 200 g

ERSA MiniXenon light source:

Voltage / power: 220 V - 240 V~, 50 Hz, 50 W or
100 V - 120 V~, 60 Hz, 50 W
Please note the data on the
rating plate
Fuse: 1.0 A -T at 230 V, 5 x 20 mm, delayed action
2.0 A -T at 115 V, 5 x 20 mm, delayed action
Class of protection: BF
Weight: approx. 2.5 kg
Spare illuminant 24 W / 24V

For getting started, read the operating instructions that are enclosed with the light source.

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PERFORMANCE DATA OF THE OPTICAL SYSTEM AND INSPECTION CAMERA

The ERSASCOPE 2 inspection system consists of a basic unit and exchangeable optical systems for the widest variety of requirements.

ERSASCOPE 2 inspection optical system basic unit

Overall length:	approx. 155 mm
Weight:	approx. 170 g
Principle:	endoscopic-optical system
Measurement scale:	approx. 4x 360° subdivided along the perimeter
Light regulation	separate for front light and backlight
Backlight characteristics:	changeable, height-adjustable and swiveling for 0°-
Light feed:	LEMO connector
Optical data:	dependent on optical system heads

Exchangeable optical system 0° head

Use:	Top-view inspections with high magnification
Focal range:	3 - ∞ mm
Image angle:	approx. 38°
Footprint:	6 mm

Exchangeable optical system 90° head

Use:	Inspections of concealed solder joints with a gap height of typically 100µm - 1500µm, as on BGAs. Operation possible only with ERSASCOPE 2 basic unit.
Focal range:	0 - ∞ mm
Image angle:	approx. 23°
Footprint:	3.0 x 6.0 mm

Exchangeable optical system 90° flip chip head

Use:	Inspections of concealed solder joints with smallest gap height up to 12 µm, as on flip chips. Operation possible only with ERSASCOPE 2 basic unit.
Focal range:	0 - ∞ mm
Image angle:	approx. 23°
Footprint:	1.5 x 4.5 mm

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TV zoom adapter

Overall length:	approx. 66 mm
Weight:	approx. 70 g
Focal range:	25 mm - 40 mm
Connection:	M12x1 at input, C mount at output

MACROZOOM inspection optical system (*optional*)

Max. imaging scale	0.084 – 0.84
Aperture adjustment	F 5.6 – 32C, through the lens ring 5.6, 11, ... (f-number)
Focus adjustment	180 – 450 mm, through the lens ring F – N (distance – close)
Zoom adjustment	through the lens ring W - T (wide angle – telephoto)
Filter thread	M46 x P0.7
Dimensions	diameter 48 mm, length 98.5 mm
Working distance	138 mm - 450 mm
Connection:	C-mount

Inspection camera

Type	CCD color inspection camera
Standard	NTSC / PAL
White balance	manually with the WB pushbutton on the inspection camera
Shutter	factory preset and fixed

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Inspection table

XY table with fine adjustment, rotatable

Table size:	circular base plate with anti-static mat, diameter 320 mm
Weight:	approx. 5 kg
Sliding distance:	approx. ± 40 mm in each direction
Rotational angle:	360° with 90° indexing
Table height:	approx. 80 mm
Bearing system:	ball bearings
Operation:	quick adjustment as sliding table, fine adjustment by adjusting wheels with attainable movement precision in the small μm range

XY table for oversizes (*optional*)

Table size:	approx. 600 x 700 mm, with antistatic mat
Table height:	approx. 90 mm
Weight:	approx. 10 kg
Sliding distance:	approx. ± 280 mm along X-axis approx. ± 150 mm along Y-axis and up to approx. ± 300 mm along Y-axis in combination with the pull-out unit
Bearing system:	ball bearings
Operation:	quick adjustment as sliding table, fine adjustment by adjusting wheels with attainable movement precision in the small μm range

Safety information

Attention:

Please read the enclosed safety instructions before you start using the unit.



Arrange all components, especially the light source, so that they do not present any danger!



Make sure that ventilation apertures are free of residue and moisture.



Repairs may be performed only by experienced and qualified electricians.

3 Starting operation

3.1 Scope of delivery

Attention!

All components of this system, particularly the parts of the optical system, are precision parts. Please take all due care when using these components. Especially protect your optical system against dirt. Never throw or strike optical components and never use attaching parts as levers. Always attach or detach optical components at most handtight and never with the use of tools. Damage resulting from improper use or bad handling is not covered by the warranty.

Check that you have all the parts before starting operation of the system. We pack the individual components with great care. However, if the system has evidently been damaged during transport, please do not put it into operation.

Should the listed components be damaged or missing, then please contact your supplier.

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3.2 Setting up and switching on for the first time

Attention!

After transport, electronic equipment must first be acclimatized – especially when there have been considerable fluctuations in temperature. In such cases, just leave the equipment in the room for about 30 minutes before switching it on.

Treat all components with the utmost care. Remember that you are dealing with precision optical instruments. Damage to the optical parts caused by improper use is not covered by the warranty.

If you are inspecting electronic modules with the ERSASCOPE 2 it is advisable to operate the system in an ESD-free environment (EPA).

Attention!

When using the system, especially the inspection camera, make sure you are not electrostatically charged; otherwise you could damage the inspection camera electronics by (e.g.) touching the connector pins.

1. First open the packaging and take out the individual components.
2. Lift out the ERSASCOPE 2 stand out carefully, and put it on a level and firm base, ideally the working surface on which it is to be used.
3. Remove the packaging and protective material.

If necessary, place the potentiometer in the right arm of the stand at the left-hand stop.



Note:

The back of the ERSASCOPE stand contains the necessary ports for operating the inspection system, namely for the power supply, video out, potential equalization and control lines. These ports are described in detail on the next page.

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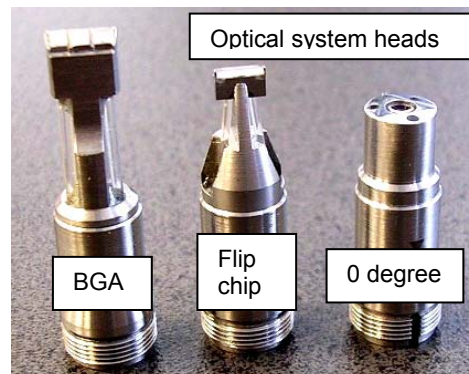
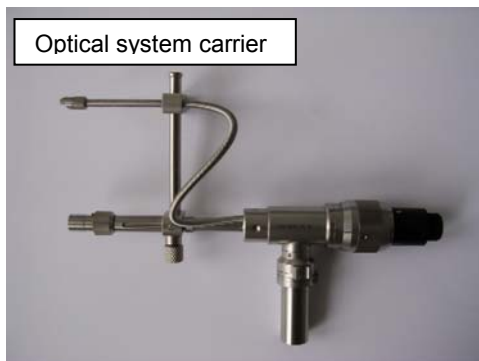
Rear side of the ERSASCOPE 2

- h** Port for light source control line (needed only in combination with remote controlled light sources)
- i** Port for 12 V power supply
- j** Port for potential equalization
- k** Port for S-video
- l** Port for FBAS video



You can connect the S-video output to the S-video input of a Falcon Framegrabber card. An FBAS video output is also available for directly connecting the ERSASCOPE to a video monitor.

4. Remove the TV zoom adapter and the optical system carrier from the packaging and assemble the two together. During assembly, make sure that the knurled screw on the TV zoom adapter is loosened. When assembling the optical units tighten the components only by hand.
Then connect the inspection camera to the TV zoom adapter.



To perform an inspection on a module, you must still select the proper optical system head. Three different versions are available. Section 3.2.x contains a detailed description of the inspection heads.

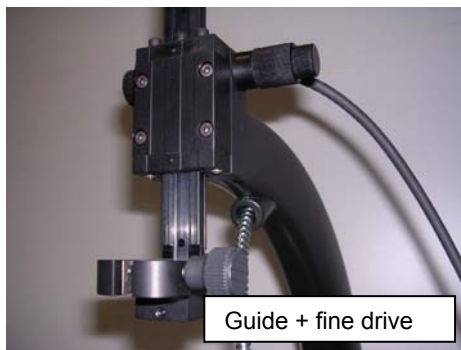
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Note: Make sure that the optical connections between the inspection camera and the TV zoom adapter, and between the TV zoom adapter and the ERSASCOPE optical unit are free of dirt.

5. Open the knurled positioning screw at the guide holder and insert the optical unit through the slotted mounting opening on the Z-axis adjusting device.



6. Then fix the entire unit in place using the knurled screw that is on the adjusting device.



7. Insert the circular plug that is premounted on the top of the stand yoke in the socket on the top of the inspection camera.



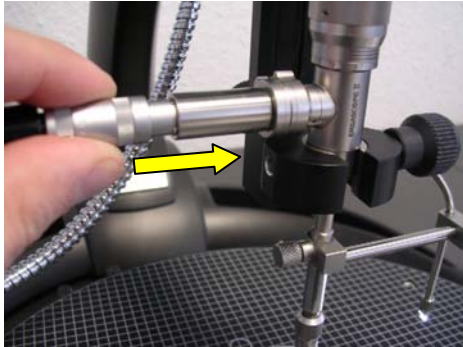
Note: The plug should generally be inserted or disconnected only if the camera is without voltage, to avoid damage to the camera. To ensure a voltage-free condition, move the potentiometer on the right at the stand to the left as far as the stop.

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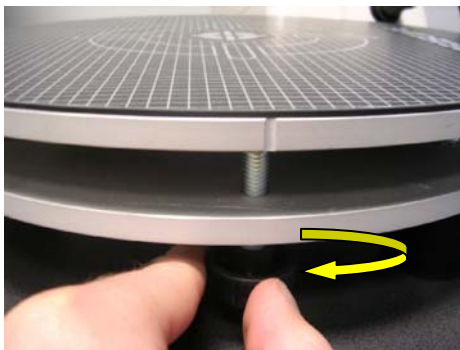
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8. Attach the fiber optic cable on the bottom of the yoke to the appropriate port on the ERSASCOPE optical unit.



9. Remove the shipping restraint of the XY rotating table by loosening the screw on the bottom of the table until the table can be moved by means of the 2 adjusting wheels. Now position the table under the optical unit.



10. Align the ERSASCOPE optical unit along the grid line of the XY table. Make sure that the ERSASCOPE optical unit runs parallel to the XY grid lines when the XY table fine adjuster is moved.
11. Remove the ERSA MiniXenon light source from the packaging. Prepare the light source for operation according to the provided light source operating instructions.
12. Connect the fiber optic cable located at the stand to the light source.



Attention!
Do not bend fiber optic cable sharply!

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13. Connect the provided power supply unit to the 12-volt socket on the rear of the ERSASCOPE stand. Connect the power plug to the power socket.



Attention!

Check that your line voltage matches the supply voltage of the power supply unit and the light source before inserting the power cable and switching on the device. The supply voltage is specified on the rating plates of the light source and the power supply unit. Damage caused by connecting incorrect supply voltages is not covered by the warranty.

14. Remove an optical system head from the diaphragm box and cautiously screw it onto the optical system carrier. Note that the groove cut into the optical system head must exactly match up with the fixing pin on the optical system carrier.

Note: When not working with the device for a longer period of time, remove the optical unit and store the single components in the provided aluminum box.



To display inspection images, you now need a monitor with an FBAS video input or a computer with a Framegrabber card.

If you wish to use a monitor, you must connect it to the ERSASCOPE via the FBAS output (video out).

In the other case, continue with the individual steps in these instructions.

To operate the system you need a computer. The suitable hardware and software are not included in this package, however.

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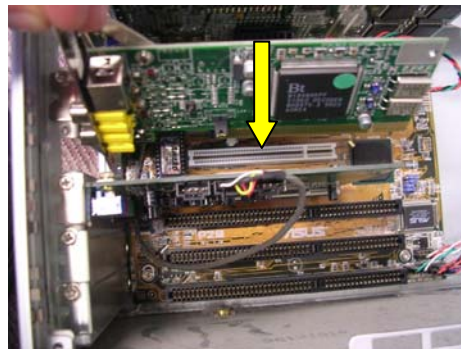
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For using the ERSASCOPE, ERSA offers various, individually applicable software packages in the ImageDoc series, including the appropriate Framegrabber cards. Precise information on the differences between the types of software is available on request from ERSA or our distributors.

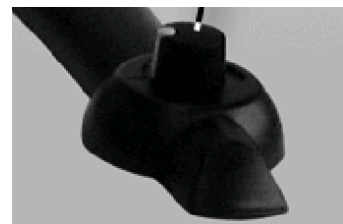
3.2.1 Installing and starting operation of the Falcon Framegrabber card

1. Disconnect the voltage supply from your computer, open the housing and insert the Framegrabber card in a free PCI slot. Now close the housing and start the computer.



Note: Note the minimum requirements on the hardware (see software CD-ROM).

2. Insert the ERSA ImageDoc CD in the drive and install the inspection software as described in the CD-ROM booklet.
3. Connect the ERSASCOPE stand to the ERSA Framegrabber card using the S-video cable provided with the card.
4. Switch on the ERSASCOPE using the potentiometer located on the right arm of the stand.
5. Switch on the light source with the switch at the front.



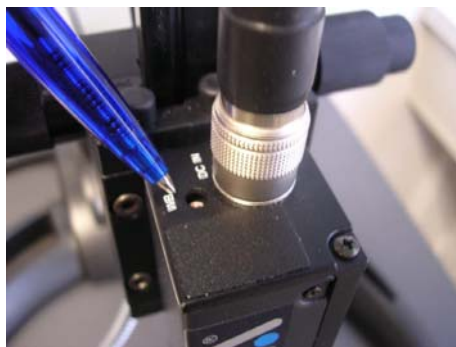
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6. Start the inspection software on your computer and activate a live image.
7. Carry out white balancing for the inspection camera. To do this, hold a white sheet of paper about 1 cm in front of the ERSASCOPE optical system. The paper should appear slightly gray on the monitor, otherwise it is over-illuminated. The paper may appear with color nuances. In this case press the white balance button on the top of the inspection camera and keep pressed for a few seconds. This button is labeled “WB” (for white balance). The paper should now appear white to light gray without incorrect color rendition.

Note: The white balance button can be easily operated using a pointed object, such as a ball-point pen.



8. If you do not have an optimum image after this white balancing, check the image parameters of the ERSA ImageDoc software and the resolution of your monitor (should be 1024 x 768). For optimal operation, set the brightness to about 140 in the Imagedoc software. You can also use this setting for the MAGNISCOPE. We recommend the default settings when working with MACROZOOM.

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3.2.2 Special features of ERSASCOPE with the XL option

The XL option was developed for the inspection of large PCBs. The option consists of an XL inspection table placed under the optical unit in place of the usual XY table. A remote control box and pull-out unit are also included.

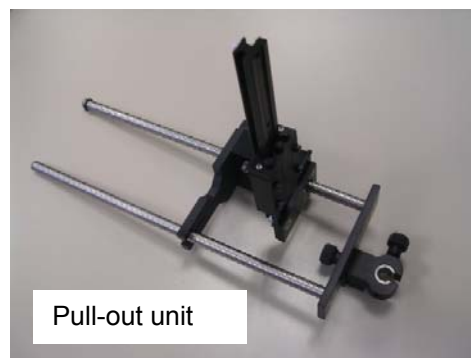
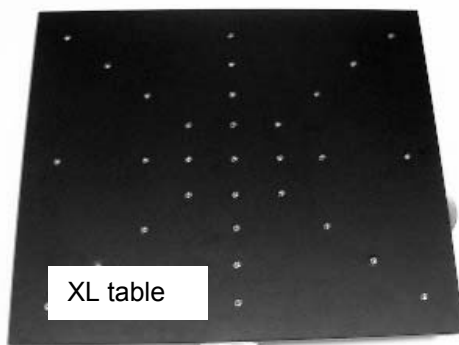
When used, the XL table covers the potentiometer on the right leg of the stand. Since the camera can then no longer be switched on and off, you have to connect the remote control box to the system. This box performs the same control function as the potentiometer on the stand.

Important: The potentiometer on the ERSASCOPE stand must always remain switched on.

- e = ON button for the camera
- f = connection to a remote controlled light source
- g = voltage supply from power unit
- h = voltage supply to the ERSASCOPE stand.

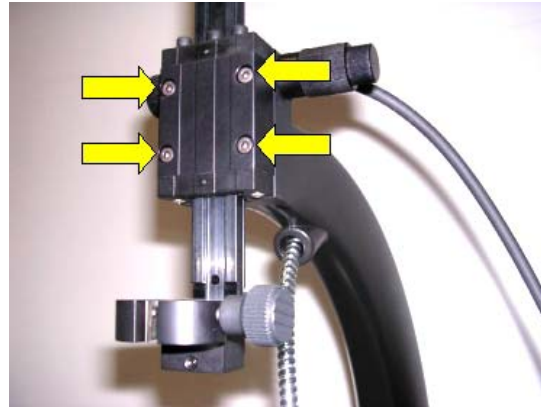


When setting up the XL table, ensure maximum freedom of movement. That is, when the table is moved to the rear it should not strike the stand. Place the control box easily accessible next to the table.

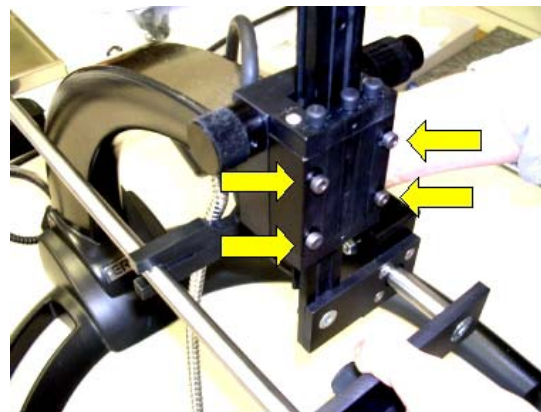


Conversion of the guide to the XL pull-out unit

1. First remove the Z-axis guide of your existing inspection system by first loosening the four Allen screws and then removing the guide

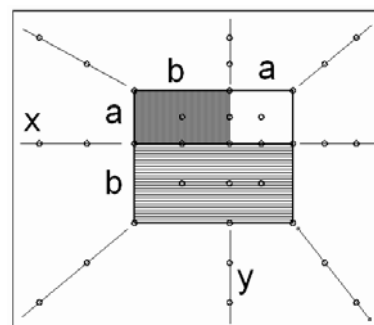


2. At the same place mount the XL pull-out unit by setting it on the adapter plate and fixing the unit in place by means of the four Allen screws.



Use of the PCB spacers on the XY table, type XL

The table has 33 holes in which you can insert the 9 spacers made of conductive plastic. The sets of 4 holes form rectangles on the diagonals, with these rectangles being asymmetrically subdivided by the horizontal x axis and the vertical y axis (a and b). You therefore obtain within the outlined rectangle 6 other rectangles of varying sizes, 3 of which are shaded in the figure. The same system applies to the vertical alignment. The result is greater flexibility for the PCB size to be used.



For larger PCBs you can use the inner holes as middle support.
We recommend resting the smallest PCBs on conductive foam for the inspection.

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3.2.3 Functional description of the ERSASCOPE 2 carrier

The ERSASCOPE carrier serves both to hold the three inspection heads and to adjust the quantity of light and the focus.

A = Backlight

B = Front light integrated in given inspection head

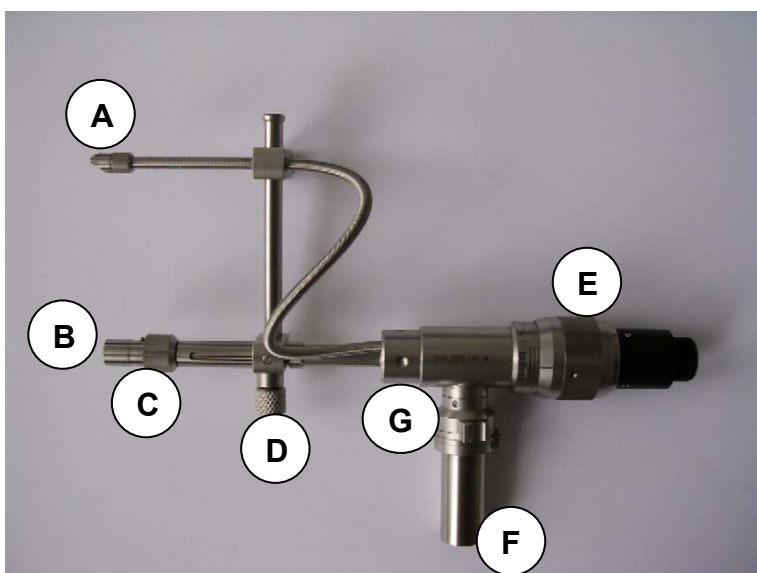
C = Receiver + mount for inspection heads

D = Adjusting screw for the backlight arm

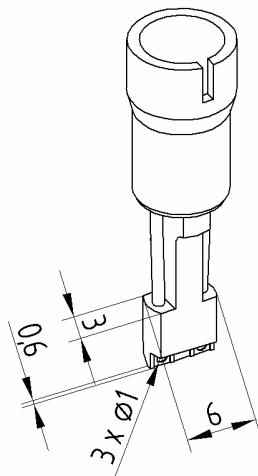
E = Focus controller with scale

F = Fiber optic cable interface

G = Front-backlight controller



3.2.4 Functional description of the ERSASCOPE 2 BGA inspection head



The following conditions must be satisfied in order to inspect components with the ERSASCOPE 2 optical unit:

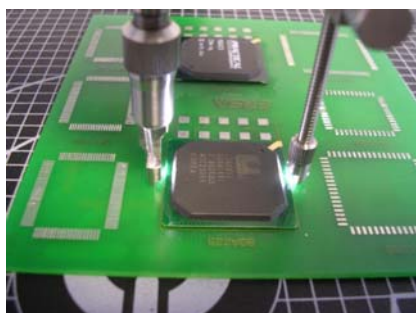
The minimum gap between the floor of the component and the printed circuit board must be 0.28 mm or greater. If it is not possible to position the optical unit correctly because of neighboring components, desolder these temporarily.

The drawing of the inspection head shows the gap size and the dimensions required for the inspection.

All data in the technical drawing are in mm.

Inspection of BGA components

1. Remove the BGA head from the diaphragm box and mount it on the carrier unit. Note the locking pin, which is necessary for correctly inserting the inspection head.
2. Position the component to be inspected (PCB) on the XY table and align the table parallel to the direction of motion of the optical system. For printed circuit boards with components on both sides, use the PCB support pillars which are shipped with the package.
3. Lower the ERSASCOPE optical unit using the Z-axis adjusting device on the guide until the system is practically on the same level as the PCB. The optical system must not apply pressure on the PCB, however!
4. Change the distance of the backlighting to the optical system according to the component to be inspected, using the adjusting screw. The backlight should not touch the PCB, however. The distance between the optical system or backlighting unit and the component to be inspected (outer edge) should now be approximately 1 to 2 mm.
5. Using the focus and the light quantity controller, adjust the ERSASCOPE so as to obtain the best possible inspection results displayed on your monitor.



Positioning of optical system and backlight

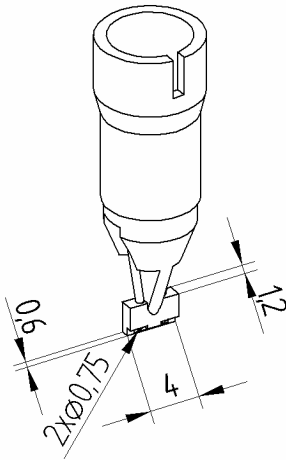


Focusing the optical system



Adjusting the optimal light quantity

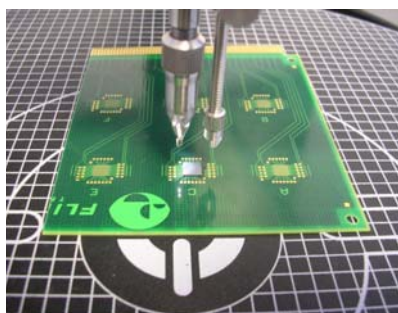
3.2.5 Functional description of the ERSASCOPE 2 flip chip inspection head



For inspecting components with the flip chip head, the following parameters must be fulfilled. The minimum distance of the component floor from the PCB must be 0.012 mm or more. If the optical unit cannot be correctly positioned because of the neighboring components, desolder them temporarily. The drawing of the inspection head shows the gap sizes and dimensions required for the inspection. All drawing specifications are in mm.

Inspection of flip-chip components

1. Remove the flip-chip head from the diaphragm box and mount it on the carrier unit. Note the locking pin, which is necessary for correctly inserting the inspection head.
2. Position the component to be inspected (PCB) on the XY table and align the table parallel to the direction of motion of the optical system. For printed circuit boards with components on both sides, use the PCB support pillars which are shipped with the package.
3. Lower the ERSASCOPE optical unit using the Z-axis adjusting device on the guide until the system is practically on the same level as the PCB. The optical system must not apply pressure on the PCB, however!
4. Change the distance of the backlighting to the optical system according to the component to be inspected, using the adjusting screw. The backlight should not touch the PCB, however. The optimal distance of the optical system or the backlight unit from the component to be inspected (outside edge) is <1 mm. Make sure that the optical unit has no mechanical contact with the object to be inspected or with a neighboring object.
5. Using the focus and the light quantity controller, adjust the ERSASCOPE so as to obtain the best possible inspection results displayed on your monitor.



Positioning of optical system and backlight

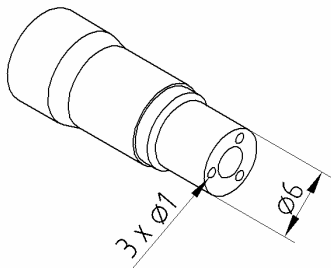


Focusing the optical system



Adjusting the optimal light quantity

3.2.6 Functional description of the ERSASCOPE 2 0-degree inspection head



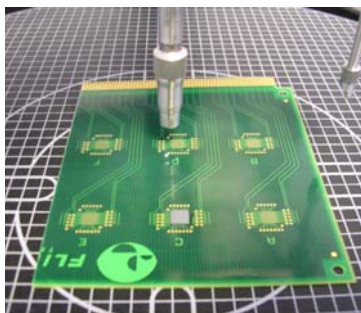
The 0-degree head allows components to be inspected from the top view as well as in a continuously variable angle of up to 45° to the left or right.

The distance from the component is controlled using the Z axis adjuster. You can change the angle of view by means of the knurled screw on the back of the Z axis adjuster.

All data in the technical drawing are in mm.

Top-view inspection

1. Remove the 0-degree head from the diaphragm box and mount it on the carrier unit. Note the locking pin, which is necessary for correctly inserting the inspection head.
2. Position the component to be inspected (PCB) on the XY table and align the table parallel to the direction of motion of the optical system. For printed circuit boards with components on both sides, use the PCB support pillars which are shipped with the package.
3. Using the Z-axis adjusting device on the guide, lower the ERSASCOPE optical unit to 3 cm above the area to be inspected.
4. Using the focus and the light quantity controller, adjust the ERSASCOPE so as to obtain the best possible inspection results displayed on your monitor.



Positioning of optical system and backlight



Focusing the optical system



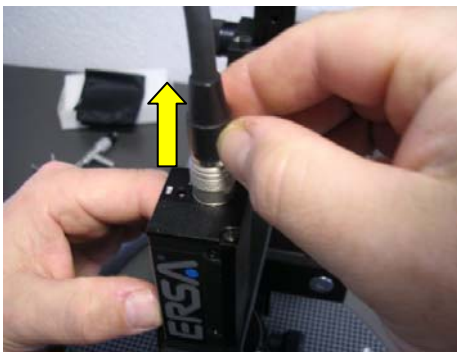
Adjusting the optimal light quantity

3.2.7 Functional description of MACROZOOM (optional)

The MACROZOOM lens is designed for standard video microscopic tasks. As with the 0-degree head, the viewing angle corresponds to a top-view inspection, with a continuously variable angle of 45° to the left or right.

Changing the optical units to MACROZOOM

1. Switch off the device using the potentiometer on the right leg of the stand and remove the round connector of the inspection camera and the fiber optic cable from the optical unit.



2. Disconnect the TV adapter from the camera. Remove both assemblies from the ERSASCOPE and carefully set them aside.
3. Mount the CCD camera in the MACROZOOM holder by means of the clamping screw.



4. Screw the MACROZOOM lens into the C-mount thread of the CCD camera.



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5. Clamp the MACROZOOM holder in combination with the camera in the guide of the Z-axis and fix the holder in place with the knurled screw.



6. Connect the ERSASCOPE to the CCD camera and switch on the system.



Note: If necessary, carry out white balancing again (see step 7 in the section on starting operation).



The MACROZOOM offers the following adjustments:

a.) Aperture The aperture controls the amount of light transmitted. The aperture, or f-, number indicates the size of the opening in the diaphragm. 5.6 indicates a narrowly closed, and 32 a wide-open aperture.

b.) Zoom The zoom specifies the viewing angle. T stands for "telephoto", that is, the viewing angle is small and the enlargement great. W stands for "wide angle": the image detail is large and the enlargement small.

c.) Focus After the image detail has been found through the zoom, the image must still be focused. Use the "Focus" function for this purpose. Adjust this control until the image is sharp.

4. Fault diagnosis and fault rectification

Inspection camera does not work

Blue screen:

A blue screen on your monitor indicates that no camera signal has been received at the active input of the Framegrabber card. Check therefore whether the ERSASCOPE is switched on and that all power supplies and connections to the device and to the PC are intact.

Black screen:

A camera signal has been received at the particular input of the Framegrabber card. A possible reason for the black screen is too little light at the optical unit.

Remove the optical unit and see if an image is displayed with the camera alone.

Image with lines and interference

Check the camera settings of the ImageDoc software. An important point is the video format such as PAL or NTSC. This format must match the camera type and software setting. Another important point is that the 32 bit RGB color format must be activated.

The light source does not function

- Actuate the switch on the front of the light source
- Check the power connection and the line voltage of the light source.
- Check the fuse in the light source.
- Check illuminant.

Light source working, but there is too little light from the ERSASCOPE backlight

- Check the position of the aperture mechanism on the housing front.
- Check the position of the backlight controller on the optical system carrier.
- Check whether the illuminant is correctly inserted.
- Check whether the fiber optic cable is correctly connected.
- Check whether the fiber optic cable is damaged.

Image is unfocused or cannot be focused

- Clean all optical transition points in the inspection system using the special ERSASCOPE optical system Cleaning Kit (0VSLC100).
- Have all components been screwed together correctly?
- Check the prism of the optical system for scratches, cracks, dirt, etc.

Image colors are wrong or brightness / contrast is less than optimal

- Carry out white balancing of the inspection camera (see starting operation of the Framegrabber, step 7)
- Check the light intensity using the potentiometer at the light source.
- Check the setting of the monitor / PC
- Check the image parameters of the ERSA ImageDoc software if you are using the latter.

XY table does not move

- Check whether the shipping restraint is released (starting operation, step 10).

If you cannot solve a problem, notify us by e-mail. Our Service Department will try to help you as fast possible.

Our e-mail address: service.tools@ersa.de

5. Maintenance and servicing

- Make sure that the optical components are not subjected to mechanical stress, thrown, dropped or placed too firmly on the printed circuit board.
- Make sure that the optical components are free of dirt and grease.
- When not working with the inspection system, store the optical components in the provided aluminum box.
- Clean the optical components using only a soft cloth. To remove stubborn dirt, you can soak the cloth in special glass cleaning fluid.
- Check regularly that any ventilation apertures of the light source are free of dust and other deposits.

Only use a moist cloth to clean the parts of the housing.

Note:

Only use original ERSA consumable items and spare parts to ensure reliable functioning and to retain your warranty.

ERSASCOPE 2

Operating Instructions



6. Accessories for the ERSASCOPE inspection systems

Note: The products are displayed below in their typical work surroundings. The objects shown in the photos are not necessarily included with the given accessories. The designs of the products are subject to change without notice.

ERSASCOPE 2 DUST COVER

- High-quality, durable material, gray
- Washable
- Antistatic
- For all ERSASCOPE systems

0VSSH100 Dust cover



ERSASCOPE 2 OPTICAL SYSTEM CLEANING KIT

- Washable microfiber cloth
- Cleaning fluid and cleaning paper for stubborn dirt

0VSLC100 Optical System Cleaning Kit, consisting of

- microfiber cloth, cleaning fluid and two packets of cleaning paper in self-sealing folding bag



DOCUMENTATION CAMERA

- Connection to the auxiliary inputs of the Framegrabber
- Aperture control and focusing at the inspection camera head
- Adaptation to the image recording environment by means of the flexible goose neck
- PAL version (NTSC on request)

0VSECAMP PAL documentation camera



STARTING OPERATION, TRAINING FOLLOWED BY ACCEPTANCE

- Optimization of the ERSASCOPE 2 system, including ImageDoc software training
- Instruction of the operating personnel (max. 4 persons)

9VSTRAIN Product training

XL UPGRADE SET FOR THE ERSASCOPE INSPECTION SYSTEM

- Pull-out unit 3VSST170
- Guide for XL operation 3VSST160-00
- XY table, type XL 0VSXY3003
- Remote control box 0VSR100

0VSUP3XL Complete upgrade set

OPTIONAL OPTICAL SYSTEMS WITH ACCESSORIES

- Macrozoom 3VSMZ100
- Macrozoom holder 0VSMZ100-04
- Fiber optic ring light for Macrozoom 0VSFR100

OPTIONAL ACCESSORIES

- Support pillars 23526
- Calibration scale 0VSRM100

SOFTWARE + FRAMEGRABBER CARD

- ERSASCOPE IDView 2.0 0VSI100
- ERSASCOPE ImageDoc 1.3 Basic 0VSI130
- ERSASCOPE ImageDoc EXP 2.0 0VSI200

ERSASCOPE 2

Operating Instructions



List of spare parts

Item: Description:

ERSASCOPE stand

0VSNT100	POWER SUPPLY UNIT	/110-240
0VSST205	CONTROL CARD 2 IN STAND	
3ET00227	BNC/SS8 CABLE	
3ET00228	ADAPTER, BNC-CINCH	
3VSST100-01	CONTROL CABLE WITH POTENTIOMETER	
3VSST100-22	CAMERA CABLE IN THE STAND	
0VSSL200	FIBER OPTIC CABLE WITH GOOSE NECK	
3VSST160-00	COMPLETE GUIDE	

Lighting components

0VSL201	MINIXENON REFLECTOR LAMP
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Inspection camera and optical system

0VSCA100N	DIGITAL COLOR CAMERA, NTSC
0VSCA100P	DIGITAL COLOR CAMERA, PAL
0VSSE200	ERSASCOPE 2 OPTICAL SYSTEM, COMPLETE
0VSSE200-0K	ERSASCOPE 2 0-DEGREE HEAD
0VSSE200-90K	ERSASCOPE 2 90-DEGREE HEAD
0VSSE200-FCK	ERSASCOPE 2 FLIP CHIP HEAD
0VSSE200-T	ERSASCOPE 2 CARRIER
0VSSE200-G	ERSASCOPE 2 BACKLIGHT PRISM

Inspection table

3VSXY100-04	TELESCOPIC RAIL UNIT
3VSXY100-05	SUPPORT PILLAR BASE
3VSXY100-06	SUPPORT PILLAR, SUPPORT TIP
3VSXY100-07	SUPPORT PILLAR, SUPPORT RING
3VSXY100-09	TABLE COVER
3VSXY120-00	SUPPORT PILLAR, COMPLETE

ERSASCOPE 2

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Warranty

The warranty period is specified in the applicable version of the General Terms of Sales Deliveries and Payment of ERSA GmbH (indicated in the ERSA price list, for example).

Warranty claims will be accepted only if the devices or components are returned in the original packaging.

Attention!

All the components of this equipment are precision parts. Please take all due care when using these components. Wearing parts and damage as a result of improper use or bad handling are not covered by the warranty.

Only use original ERSA consumable items and spare parts to ensure reliable functioning and to retain your warranty.

ERSA has produced these Operating Instructions with the utmost care. Nevertheless, we cannot provide any guarantee for the content, completeness or quality of the information contained in this manual. The content is being continually updated and adapted to current conditions.

All the data contained in these Operating Instructions, including specifications of products and procedures, have been obtained by us in good conscience and using the latest technical equipment. These specifications are provided without obligation and do not discharge the user from the responsibility of conducting an inspection before using the device. We accept no responsibility for violations of the industrial property rights of third parties or for applications and procedures that we have not previously expressly approved in writing.

We reserve the right to make technical changes in the interest of product improvement.

Within the bounds of legal possibility, liability for direct damage, consequential damage and third party damage resulting from the acquisition of this product are excluded.

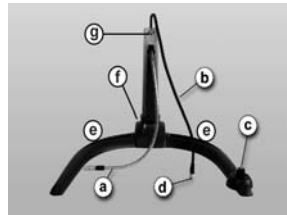
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ERSASCOPE EXP

Operating Instructions

Fig. 1.1 Stand, overall view

- a) Fiber optic cable, internal
- b) Inspection camera cable, internal
- c) Potentiometer
- d) Connector for inspection camera
- e) Leveling screws
- g) Assembly flange for dovetail guide



Rear side ports:

- h) Port for light source control line
- i) Port for 12V DC power supply unit
- j) Port for external potential equalization
- k) Port for S-video.
- l) Port for FBAS video



Fig. 1.2 Stand, accessories

- a) Power supply unit, 12V DC
- b) Power feed cable
- c) BNC connecting cable
- d) BNC - cinch adapter



Fig. 2.1 MiniXenon light source

- a) Port for fiber optic cable
- b) Light quantity controller
- c) ON/OFF switch



Fig. 2.3 Fiber optic ring light

- a) MACROZOOM receiving side
- b) Port for fiber optic cable (LEMO)
- c) Fixing screw
- d) Light emitting side

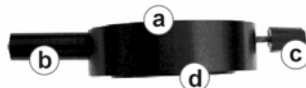


Fig. 3.1 Inspection camera

- a) Connecting socket
- b) Pushbutton for white balance
- c) C-mount port

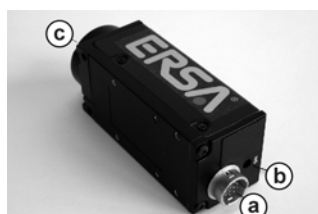


Fig. 1.3 Dovetail guide

- a) Z-axis adjuster
- b) Guide mount
- c) Optical carrier receiver
- d) Angle adjuster

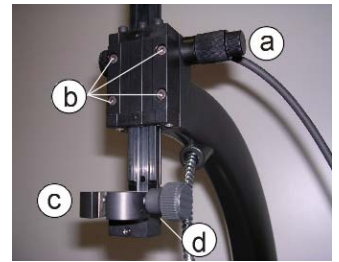


Fig. 1.4 Pull-out unit

- a) Optical system receiver
- b) Z-axis mounting rail
- c) Optical system fixing screw
- d) Pull-out fixing screw
- e) Angle adjuster
- f) Pull-out rails

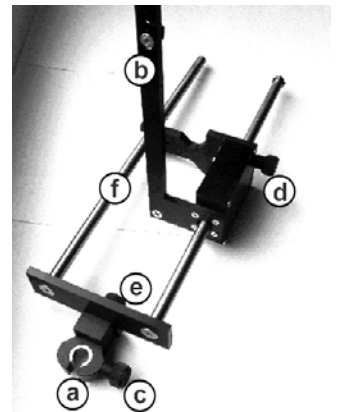


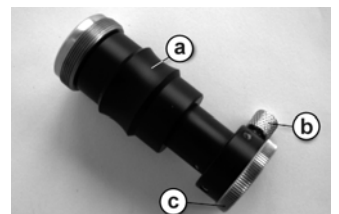
Fig. 2.2 Light fan

Light fan for the special illumination of places difficult to access.



Fig. 3.2 TV zoom adapter

- a) Zoom adjustment
- b) Fixing screw
- c) Rotatable optical system receiver



ERSASCOPE EXP

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Fig. 3.3 ERSASCOPE-II basic unit

- a) Port for TV adapter
- b) Focus
- c) Measurement scale
- d) Port for fiber optic cable
- e) Front light aperture
- f) Backlight aperture
- g) Assembly holder
- h) Flexible fiber optic cable for the backlight
- i) Clamping screw for horiz. displacement of backlight
- j) Position for folding out the backlight
- k) Clamping screw for vertical displacement of backlight
- l) Exchangeable backlight prism
- m) Backlight prism change bushing
- n) Port for opt. sys. head
- o) Optical head change bushing
- p) Backlight folded out
- q) ERSASCOPE mounted with TV zoom adapter + inspection camera

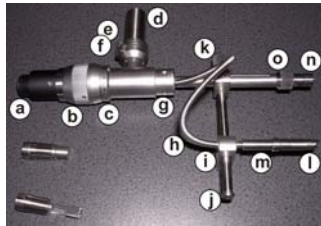


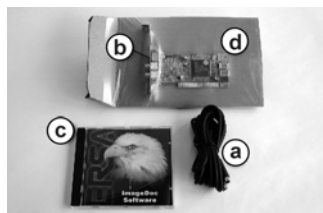
Fig. 4.1 XY table with fine adjustment

- a) Shipping constraint
- b) Antistatic table cover.
- c) XY fine adjuster
- d) Support pillars



Fig. 5 ERSASCOPE ImageDoc software and Framegrabber card (optional)

- a) S-video cable
- b) S-video input
- c) CD ROM with ERSASCOPE ImageDoc software
- d) Framegrabber



Calibration scale



Fig. 3.4 ERSASCOPE-II 0° exchangeable head

- a) Port for basic unit
- b) Light outlet in "ring light arrangement"
- c) Optical system



Fig. 3.5 ERSASCOPE-II 90° BGA exchangeable head

- a) Port for basic unit
- b) Light outlet
- c) Optical system with prism guard



Fig. 3.6 ERSASCOPE-II 90° FC exchangeable head

- a) Port for basic unit
- b) Light outlet
- c) Optical system without prism guard



Fig. 3.7 MACROZOOM top-view optical system (optional)

- a) Aperture adjusting ring
- b) Zoom adjusting ring
- c) Focus adjusting ring
- d) C-mount port
- e) Inside thread, M46
- f) MACROZOOM holder
- g) Fixing screw
- h) Inspection camera
- i) Fiber optic ring light (Fig. 2.3)



Fig. 4.2 XY table, type XL and remote control box

- a) Shipping restraint
- b) Spacer
- c) Leveling base
- d) Fine adjuster
- e) Control potentiometer
- f) Port for light source control cable
- g) Port for 12V DC power supply unit
- h) Cable for the 12V DC voltage supply for the ERSASCOPE 2 stand



Fig. 6 Accessories

- a) Dust cover
- b) Optical system cleaning set
- c) Mouse pad
- d) Operating Instructions

