

Stereomicroscopes	
SZ2	
SZX7/SZ61/SZ51	

Comfort for Your Eyes – Precision for Your Work





COMFORT FOR YOUR EYES – PRECISION FOR YOUR WORK

The right tool for the job; every time

Improving your stereomicroscopy performance and efficiency is best achieved via the simplest route. The new Olympus SZ2 series of stereomicroscopes provides a unique level of optical convenience with no eye fatigue, since the innovative ComfortView eyepieces allow natural, relaxed vision, thus considerably reducing the time required for adjusting the microscope. As a result, your eyes focus more quickly on the stereo image and your head and eyes enjoy more freedom of movement - without forfeiting the 3-D effect. Moreover, the advanced optics ensure the highest levels of colour fidelity. All three models - the SZX7 with its advanced Galilean optical system, the full-featured SZ61 and the versatile SZ51 - provide 3-D images with true colour, high resolution and no distortion. Comfort for your eyes - precision for your work.

Systemically better

The SZ2 series draws on two different stereo optical systems: Greenough and Galileo. These two systems have unique properties and ensure that the Olympus SZ2 series is perfect for any situation.

periods.

Modular operation

scopy.

Your vision: our future

Olympus is dedicated to making the right microscopes and accessories to support your work on all levels. We have therefore worked closely with customers to produce the best stereomicroscopy solutions - the SZ2 range. As a result, our goal is your success – both now and in the future.

Unsurpassed comfort

With such good optical characteristics, you are going to want to use the SZ2 microscopes much more than you ever have in the past. Olympus has therefore made them amazingly comfortable to use for both short and extended time

It has been suggested that it is the accessories that makes the application, and with a range of lighting solutions, stands and other accessories, the SZ2 series really does provide all possible system options for better stereomicro-

10-13

4-9

14-19

SYSTEMATICALLY BETTER

One series, two optical systems, many applications

Two different optical systems have been developed for stereomicroscopy – Greenough and Galileo. In a Greenough system, the two images (left and right) are convergent directly from the eyepieces to the object, providing great depth of field for inspection and assembly work. The Galileo system on the other hand, puts the two light paths in parallel, ensuring excellent resolution and system flexibility for precise measuring tasks and documentation. Both systems provide excellent contrast and colour fidelity. Moreover, the systems offer a level of optical comfort not normally associated with stereomicroscopy.





A SZX7 Galilean light paths*











OPTICAL EXCELLENCE AND SYSTEM EXPANDABILITY -**SZX7 WITH GALILEO OPTICS**

A The Olympus SZX7 provides the optimal image for any specimen through the use of the Galilean optical system in combination with distortion-free (DF) objective lenses which provide the maximum possible numerical apertures (NA).

The best zoom ratio in this class

With a magnification range of 8x–56x (using 1x objective/10x eyepiece), the SZX7 offers a maximum zoom ratio of 7:1. This is the best in its class, and allows any given specimen to be observed at the most appropriate magnification.

Ultimate resolving power

The superior-quality objectives deliver accurate, high-resolution images, which show every specimen in minute detail.

B A range of objectives to suit every specimen and every application

Superior image flatness

The DFPIan objective series accurately reproduces the original shape of the specimen.

Longest working distance (WD)

The objectives range from the SZX-ACH1x (90 mm WD) to the DFPL0.5x (171 mm WD). As a result, even specimen surfaces which are difficult to access can be observed easily.

Ideal for high magnification

Superior image quality is ensured up to 336x magnification, by combining a 2x objective with 30x eyepieces.

ComfortView eyepieces for greater comfort and faster work

Quick, comfortable observation via the ComfortView eyepiece design, which features pupil aberration control and flexible eyepoint positioning.

Accurate colour reproduction

The careful selection of lens surface coating and glass materials throughout the entire optical system makes it possible to observe and document specimens in their original, authentic colours.

Sharp, clear, high-contrast images

The low, suppressed field curvature ensures accurate reproduction of original specimen shapes.

* Galilean optics feature two (right/left) independent and parallel zoom optical paths to produce the focal point with one objective lens. The system enables high optical performance as well as functional modularity.

A wide variety of observation tubes and intermediate tubes enables operators to obtain precisely the right image

C D Various different types of tubes are available, and can be freely combined to create the ideal system for any specified purpose.

SZX7 intermediate tubes Purpose

Aperture diaphragm unit	To optimise depth of field
Coaxial reflected light illuminator	Illumination for flat and mirrored samples
Vacro tube	Macro photography (field of view $Ø = 138$
Beam splitter	Stereo documentation with 2 cameras
Eyepoint adjuster	To adjust the height of the eyepoint



	Product
	name
	SZX-AS
	SZX2-ILLC10
nm)	SZX-DA
	SZX2-LBS
	SZX-EPA



A SZ61/SZ51 Greenough light paths*



PRECISE, FUNCTIONAL AND COMPACT - SZ61/SZ51

A The SZ61/SZ51 incorporate the Greenough optical system and provide a range of practical functions for observation and documentation in a compact stereomicroscope body.

6.7 – the best zoom ratio in this class

The SZ61's class-leading magnification range extends from 6.7x-45x (using 10x eyepiece), with a zoom ratio of 6.7:1. This is as a result of the newly developed optical system and allows quick, comfortable observations at the most suitable magnification. The SZ51 provides a magnification range of 8x-40x (using 10x eyepiece), with a zoom ratio of 5:1.

Outstanding depth of focus and flatness

The 10-degree convergence angle of the image-forming paths in the Greenough optical system provides excellent image flatness with a large depth of focus.

ComfortView eyepieces for greater comfort and faster work

Quick, comfortable observation and documentation via the ComfortView eyepiece design, which features pupil aberration control and flexible eyepoint positioning.

Accurate colour reproduction

The careful selection of lens surface coating and glass materials throughout the entire optical system makes it possible to observe and document the specimens in their original, authentic colours.

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The low, suppressed field curvature ensures accurate reproduction of original specimen shapes.

Five high-performance zoom bodies

B The SZ61 and SZ51 zoom bodies provide two different magnification ranges. Each one is ergonomically designed with a 45° inclination tube for use on normal stands.

C For special applications where the zoom body has to be tilted for use with other equipment or mounting on a universal stand, 60° inclination tube models (SZ61-60/ SZ51-60) are available.

D For documentation purposes, Olympus also offers the SZ61-TR, which incorporates a trinocular tube for the quick and easy attachment of digital cameras.

Wide choice of auxiliary objectives

A wide choice of auxiliary objectives is available to enable observations at magnifications from 2x to 270x and WD up to 350 mm to comply with every application purpose.





B SZ61

45° inclination tube





* The Greenough optical system has two zoom optical paths inclined at an inward angle. This enables a more compact microscope design while maintaining high performance.



UNSURPASSED COMFORT

Comfortable, whichever way you look into it

Looking at specimens down a microscope has been known to cause neck ache and headaches, eye strain and other postural problems. With the Olympus SZ2 series, this is no longer the case since there are a number of unique ergonomic design features as well as different eyepieces, frames and other accessories to make your microscope fit you and not vice versa.





A SZ2-ILST Superslim LED stand

WORK MORE COMFORTABLY ... AND MORE PRODUCTIVELY

Olympus takes ergonomic designs one step further by ensuring that they make work easier, more comfortable and more productive, all at the same time. That means applying advanced technological methods to maximise operability, reducing operator fatigue, and building in effective safety features such as electrostatic discharge (ESD).

Ergonomic design based on 3-D CAD analysis

The microscope body and stand feature a design of precisely curved contours developed through careful 3-D CAD analysis. Key ergonomic features include an all-round finish that's smooth to the touch and helps to reduce fatigue in long-term observations.

Convenient front-access operation

B Improved ease of access to the most frequently used knobs and switches maximises operator comfort and reduces back strain.

Tilting trinocular tube for comfortable observations (SZX7)

E A comfortable position that minimises the risk of back strain and muscle tension and promotes productivity and quality in routine inspection tasks. The continuously adjustable tilting binocular tube helps the operator to quickly find the most comfortable eyepoint position.

Precise recall of specific magnification settings

C D Many inspection tasks require the use of the same zoom magnification setting to ensure consistent and comparable results. The integrated click-stop mechanism on the SZX7 provides guick and easy access to this important function. The zoom knob stopper on the SZ51 and SZ61 allows specific magnifications to be memorised and recalled at any point. Furthermore, the setting in use is clearly displayed on the front control panel.

New eyepiece reduces fatigue and excludes dust

G This eyepiece features a pupil aberration control mechanism whereby the image remains visible even if the operator's eyes move. This lessens operator fatigue in longterm observations. Also, the special mounting system is designed to exclude dust particles and keep the eyepiece firmly in place, ensuring clear images and the best eyepiece position.

ESD safety design

H The increasing miniaturisation and complexity of electronic devices raises the risk of their damage by electric shock from electrostatic discharge. For this reason, Olympus has taken special measures to design its stereomicroscope bodies and main accessories to discharge static electricity from 1,000 V down to 100 V in less than 0.2 seconds, preventing damage to samples.

Ergonomically positioned focus handles

With the SZ2-FO focusing unit, focus adjustment can be done with the hands resting on the work surface. As a result, focusing requires minimal force as the microscope zoom body does not need to be moved. This allows prolonged work on difficult samples without fatigue.



Click-stop mechanism

D SZ2 Zoom knob stopper





B SZX7

C SZX7

Zoom handle





A KL series Cold light sources



B SZ2-ILLC Coaxial illuminator



C KL-VI Vertical illuminator



D SZ2-ILA Transmitted light stand



OLYMPUS LIGHT SOLUTIONS MAXIMISE VISIBILITY IN DIFFERENT TASKS

Olympus offers a range of illumination solutions perfectly tuned to the SZ2 stereo zoom microscope optical systems to maximise the visibility of even the minutest characteristics.

Universal reflected illumination systems

A Fibre guide illumination systems offer the highest illumination guality and flexibility. Olympus offers a compact, cost-effective 22 W light source (SZ2-LGB), a 150 W light source (KL1500) for professional use and the 250 W KL2500 for special applications.

Special illumination techniques

Even illumination on flat mirrored surfaces

B For flat surfaces, such as structured silicon wafers, the coaxial illuminators for SZX7 (SZX2-ILLC10) and the SZ61/SZ51 (SZ2-ILLC) deliver even and glare-free illumination which also ensures true colour information.

Looking into holes

C Olympus offers an effective vertical illuminator which directs near vertical light onto the specimen. Unlike ring light illumination, this technique enables the illumination of the bottom of small holes.

Making tension visible

Simple and professional transmitted illumination stands with polarising equipment (SZX2-AN, SZX-PO, SZ-AN and SZ-PO) are also available for the efficient evaluation of tension forces in transparent materials such as plastic and glass.

Transmitted light illumination systems

D For all transparent materials in life science and industrial inspection tasks, Olympus offers a choice of illumination stands for simple brightfield/simple oblique (SZX2-ILLK/ SZ2-ILA) to brightfield/darkfield (SZX2-ILLD2) and brightfield/oblique Koehler (SZX2-ILLB2) illumination.





The new LED integrated reflected/transmitted illumination stand E The world's first universal reflected/transmitted light LED illumination stand (SZ2-ILST) brings together all the advantages of LED technology. It allows the simultaneous use of reflected and transmitted illumination. The use of superslim, highbrightness LEDs successfully integrates transmitted illumination in a very slim base that allows easy specimen access and manipulation.

EasyLED Illumination

F The EasyLED series is a new cost-effective and high-performance LED system for specimen observation. The product range includes a switchable 4-segment ring light, a scanning option for tripods and a spotlight system. All EasyLED systems feature outstanding brightness, compact design and easy operation.





WIDE RANGE OF ACCESSORIES TO MEET THE NEEDS OF EVERY **APPLICATION**

Olympus microscopes are designed with flexibility in mind and therefore a range of accessories has been designed to greatly expand the applications of stereomicroscopy, whether you need a fixed stand with integrated illumination or a flexible suspension arm, for example.

Easy mounting with other equipment (bonder and prober arms)

The SZX7, SZ61 and SZ51 are designed to be integrated into process equipment. Therefore Olympus offers various bonder and prober arms for all common brands. The compact shape of the microscope zoom body and a wide choice of auxiliary lenses with working distances of up to 400 mm offer the right solution for any integration requirements.

Suspension arm stands

A The new STX suspension arm systems for stereomicroscopes let you move your microscope to where you need it. The arms enable the microscopes to be freely moved in the X, Y and Z directions. Due to the precision of the adjustable suspension arm, the microscope can be positioned at any height with just the tip of a finger. The various arm types and mounting possibilities give the flexibility to tune the arms to any application.

A STX suspension arms Wide movement range



DIGITAL IMAGING

B Image acquisition and analysis has become a very important part of microscopy and is an area where the Olympus SZ2 series excels when coupled with the range of advanced digital cameras and software packages from Olympus. Not only are these products a powerful combination, they are also all from the same manufacturer and are designed to work seamlessly so you can concentrate on your work more easily.

DP72 digital camera (SZX7, SZ61-TR)

By combining Olympus digital camera technologies originally developed for the consumer market with special high-speed processing hardware, images with up to 12.8 million pixels can be captured at high speed (around 3 seconds) while fully maintaining image quality, accuracy and colour fidelity. The DP72 employs a 2/3-inch CCD.

3-D image processing

C Once the bottom and top surfaces of the 3-D structure have been defined by focusing on the respective surfaces, the Olympus analysis imaging software does the rest for you. The result is an image that you can tilt and rotate during explanations and discussions of your findings, making them much more exciting and effective. In addition, you can also create a virtual flight over the sample's surface and store it as an '.avi' file.

Multidimensional measurements

D If your work requires more than qualitative descriptions, the SZ2 allows you to perform precise 2-D and 3-D measurements. Once the Olympus analysis software is calibrated with a standard, you are ready to use the intuitive and interactive interface to measure manually or automatically for repetitive tasks. With the zoom click stop engaged, it is possible to return to exactly the same magnification power again and again.





3-D view generated by overlaying height and image data



Interactive distance measurement

SZ2 specifications

SZX7

Zoom bodies						
	SZX-ZB7					
Zoom ratio	7					
Zoom range	0.8–5.6					
Click stop positions	0.8/1/1.25/1.6/2/2.5/3.2/4/5/5.6					
Aperture stop	The AS unit (SZX-AS) is mountable					
Observation tubes						
	SZX-BI45	SZX2-TTR	SZX2-TR30			
Туре	Binocular tube	Tilting trinocular tube	Trinocular tube			
Tilt angle	45°	5° to 45°	30°			
Light path selection, position 1		100% observation	100% observation			
Light path selection, position 2		50/50% observation/camera	50/50% observation/camera			
Interpupillary distance adjustment	52–76 mm	52–76 mm	52–76 mm			
Eyepieces	ComfortView WHSZ series	ComfortView WHSZ series	ComfortView WHSZ series			

SZ61/51

Zoom bodies						
	SZ61	SZ61-60	SZ61TR	SZ51	SZ51-60	
Zoom ratio	6.7	6.7	6.7	5	5	
Zoom range	0.67-4.5	0.67-4.5	0.67-4.5	0.8-4	0.8-4	
Click stop positions	-	-	-	-	-	
Working distance	110 mm					
Tilt angle	45°	60°	45°	45°	60°	
Interpupillary distance adjustment	52–76 mm					
Video camera adaptability	-	-	C-mount (0.5x built in)	-	-	
Eyepieces	ComfortView WHSZ series					

Accessories

Stands with focusing unit							
	SZ2-ST			SZ2-ILST			
Туре	Reflected light stand			Transmitted/reflected light	Transmitted/reflected light white LED illumination stand		
Base dimensions	194 (W) x 253 (D) x 24 (I	H)		226 (W) x 318 (D) x 24 (H	4)		
Movement range	120 mm			120 mm			
Load capacity	7 kg			7 kg			
Transmitted light illumination				White LED (48 elements)	illumination, average LED	life: 6,000 h*	
Reflected light illumination				White LED (30 elements)	illumination, average LED	life: 6,000 h*	
Fibre-optic illumination sy	stem						
Item	Specifications						
Type of illumination method	Homogeneous	Single spot	Double spot	Single spot	Double spot	Homogeneous	
Type of fibre optics	KL200-6PRL-5/1000	KL200-SHL135/500	KL200-SHL235/500	KL200-BL145/600-ILA	KL200-BL245/1000	KL200-BL245/500-ILLC	
Tube – type	Flexible	Gooseneck	Gooseneck	Flexible	Flexible	Flexible	
Tube – length	1,000 mm	500 mm	500 mm	600 mm	1,000 mm	500 mm	
Active diameter	5 mm	3.5 mm	3.5 mm	4.5 mm	4.5 mm	4.5 mm	
SZ2-LGB compact haloge	en light source						
Item	Specifications						

Item	Specifications
Dimensions and weight	90 (W) x 153 (H) x 100 (D) mm, 600 g (AC adapter, 200 g)
Rated voltage	AC adapter: input/100-240 V/50/60 Hz, output/12VDC2A
Power consumption	22 W
Bulb type	12 V, 22 W halogen bulb with mirror
Bulb model	12 V, 22 W HAL (Philips JCR12V22WA/3)
Average lifespan of bulb	2,500 hours (minimum)
Light intensity adjustment	Voltage adjustment (3 steps)
Applicable stand	SZ2-ST

* When the luminance is 50%.

ComfortView WHSZ eyepieces

	FN	Dioptre adjustment	Reticle	Focal magnification
WHSZ10x	22	-	-	-
WHSZ20x	12.5	-	-	-
WHSZ10x-H	22	-8-+5	Yes*	1.0x
WHSZ15x-H	16	-8-+5	Yes*	1.0x
WHSZ20x-H	12.5	-8-+5	Yes*	1.3x
WHSZ30x-H	7	-8-+5	Yes*	2.0x

* Applicable reticle size: 24 mm diameter, thickness =1.5 mm.

SZX7 objectives

	Numerical aperture	Max. resolution (lp	p/mm) Max. resolu	tion (µm) Working	distance (mm) Par	focal distance (mm)
DFPL0.5X-4	0.05	149	6.71	171	216	
DFPL0.75X-4	0.075	224	4.47	116	164	
DFPLAPO1X-4	0.1	298	3.36	81	137	
SZX-ACH1X	0.1	298	3.36	90	119	
DFPLAPO1.25X	0.125	373	2.68	60	123	
SZX-ACH1.25X-2	0.125	373	2.68	68	110	
DFPL1.5X-4	0.15	447	2.24	45.5	109	.5
DFPL2X-4	0.2	596	1.68	33.5	123	
Eyepiece observation			Camera observatio	n		
	WHSZ10X-H			1/2 inch (U-TV0.5XC)	2/3 inch (U-TV0.63XC)	2/3 inch (U-TV1X)
	(Field number 22)			(chip size 4.8 x 6.4 mm*)	(chip size 8.8 x 6.6 mm*)	(chip size 8.8 x 6.6 mm*)
	Total magnification	Field diameter (mm)		Field size (mm)	Field size (mm)	Field size (mm)
DFPL0.5X-4	4x-28x	Ø 55–Ø 7.8	DFPL0.5X-4	32.0 x 24.0-4.6 x 3.4	34.9 x 26.2-5.0 x 3.7	22.0 x 16.5–3.1 x 2.4
DFPL0.75X-4	6x-42x	Ø 36.7–Ø 5.2	DFPL0.75X-4	21.3 x 16.0-3.0 x 2.3	23.3 x 17.5–3.3 x 2.5	14.7 x 11.0–2.1 x 1.6
DFPLAPO1X-4	8x–56x	Ø 27.5–Ø 3.9	DFPLAPO1X-4	16.0 x 12.0-2.3 x 1.7	17.5 x13.1-2.5 x 1.9	11.0 x 8.3–1.6 x 1.2
SZX-ACH1X	8x–56x	Ø 27.5–Ø 3.9	SZX-ACH1X	16.0 x 12.0-2.3 x 1.7	17.5 x 13.1–2.5 x 1.9	11.0 x 8.3–1.6 x 1.2
DFPLAPO1.25X	10x-70x	Ø 22–Ø 3.1	DFPLAPO1.25X	12.8 x 9.6-1.8 x 1.4	14.0 x 10.5–2.0 x 1.5	8.8 x 6.6–1.3 x 0.9
SZX-ACH1.25X-2	10x-70x	Ø 22–Ø 3.1	SZX-ACH1.25X-2	12.8 x 9.6-1.8 x 1.4	14.0 x 10.5–2.0 x 1.5	8.8 x 6.6-1.3 x 0.9
DFPL1.5X-4	12x-84x	Ø 18.3–Ø 2.6	DFPL1.5X-4	10.7 x 8.0–1.5 x 1.1	11.6 x 8.7–1.7 x 1.2	7.3 x 5.5–1.0 x 0.8
DFPL2X-4	16x-112x	Ø 13.8–Ø 1.9	DFPL2X-4	8.0 x 6.0-1.1 x 0.9	8.7 x 6.5–1.2 x 0.9	5.5 x 4.1–0.8 x 0.6

* Actual chip size may vary depending on the manufacturer.

SZ61/SZ51 optical performance

Eyepiece observation			Camera obser	vation (SZ61-TR)	
	WHSZ10X-H			1/2 inch	
	(Field number 22)			(chip size 4.8 x 6.4 mm*)	
	Total magnification	Field diameter (mm)		Field size (mm)	
SZ61	6.7x–45x	Ø 32.8–Ø 4.9	SZ61	19.1 x 14.3–2.8 x 2.1	
SZ61-60	6.7x–45x	Ø 32.8–Ø 4.9	SZ61-60	19.1 x 14.3–2.8 x 2.1	
SZ61TR	6.7x–45x	Ø 32.8–Ø 4.9	SZ61TR	19.1 x 14.3–2.8 x 2.1	
SZ51	8x-40x	Ø 27.5–Ø 5.5	SZ51	16.0 x 12.0–3.2 x 2.4	
SZ51-50	8x-40x	Ø 27.5–Ø 5.5	SZ51-50	16.0 x 12.0-3.2 x 2.4	
Auxiliary objectives for	or SZ61/SZ51				
	Working distance (mm)				
110ALK0.3x	250-350				
110ALK0.4x	180-250				
110AL0.5x	200				
110AL0.62x*2	160				
110AL0.75x	130				

Eyepiece observatio	on		Camera observ	vation (SZ61-TR)	
	WHSZ10X-H			1/2 inch	
	(Field number 22)			(chip size 4.8 x 6.4 mm*)	
	Total magnification	Field diameter (mm)		Field size (mm)	
SZ61	6.7x-45x	Ø 32.8–Ø 4.9	SZ61	19.1 x 14.3–2.8 x 2.1	
SZ61-60	6.7x–45x	Ø 32.8–Ø 4.9	SZ61-60	19.1 x 14.3–2.8 x 2.1	
SZ61TR	6.7x–45x	Ø 32.8–Ø 4.9	SZ61TR	19.1 x 14.3–2.8 x 2.1	
SZ51	8x-40x	Ø 27.5–Ø 5.5	SZ51	16.0 x 12.0–3.2 x 2.4	
SZ51-50	8x-40x	Ø 27.5–Ø 5.5	SZ51-50	16.0 x 12.0-3.2 x 2.4	
Auxiliary objectives	for SZ61/SZ51				
	Working distance (mm))			
110ALK0.3x	250-350				
110ALK0.4x	180-250				
110AL0.5x	200				
110AL0.62x*2	160				
110AL0.75x	130				
110AL1.5x	61				
110AL2x	38				

Mounting by screwing into the thread at the bottom of frame (M48 x0.75 thread). *Actual chip size may vary depending on the manufacturer. *² Upon special order basis.





*1 Please consult the Stereo Microscope Lighting Systems brochure for more information *2 SZH-P400 and SZH-P600 can be attached to the transmitted illumination light bases *3 Please consult the Stereo Microscope Stands brochure for more information *4 By special order only.

SZX7 and SZ61/SZ51 dimensions



The manufacturer reserves the right to make technical changes without prior notice.



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