MODULAR Series

Modular Stereozoom Microscopes

SZM-B / SZM-T / SZN-B / SZN-T / SZP-6 / SZP-6ERGO / SZP-8
SZP-8ERGO / SZP-10 / SZP-10ERGO / ST-150 / ST-151 / ST-152 / ST-153
ST-155 / ST-156 / SZ-STL1 / SZ-STL1H / SZ-STL2 / SZ-STL2H / SZ-STL8 / SZ-STL5 / SZ-STL5LED

Modular Series

Identify The Most Suitable Heads For Your Needs
OPTIKA provides three series of stereomicroscope heads based on different field number, zoom level (and consequently, zoom ratio), inclination, and working distance.
An even more substantial differentiating element is also the optical system: choose between Greenough or Galilean.
For further details, please see the dedicated section (page 37)

Multiple Mounting Stands and Configurations
An extremely wide stand selection gives you the chance to create your tailored stereomicroscope! Choose among the several models available to virtually cover every customers' needs, in terms of illumination, arm extension, and focusing system.
For further details, please see the dedicated section (page 40)

Modular Stereozoom Microscopes

Overhanging Stand, In Case Of Large Samples
This stand is recommended for efficient, quick and precise observation and digital imaging of large samples, that cannot be processed with regular stands. Achieve 360° rotation and smooth movement with no limits, as the mechanism can be tilted from right to left, backward to forward.

ST-172

Get the most out of our accessories

ST-172 - Iris diaphragm module

With this accessory, the depth of field of the final image can be adjusted, for applications where different planes all in focus are needed.

OUT-OF-FOCUS AREA
With iris diaphragm **open**

FOCUS PLANE

IN-FOCUS AREA
With iris diaphragm **closed**

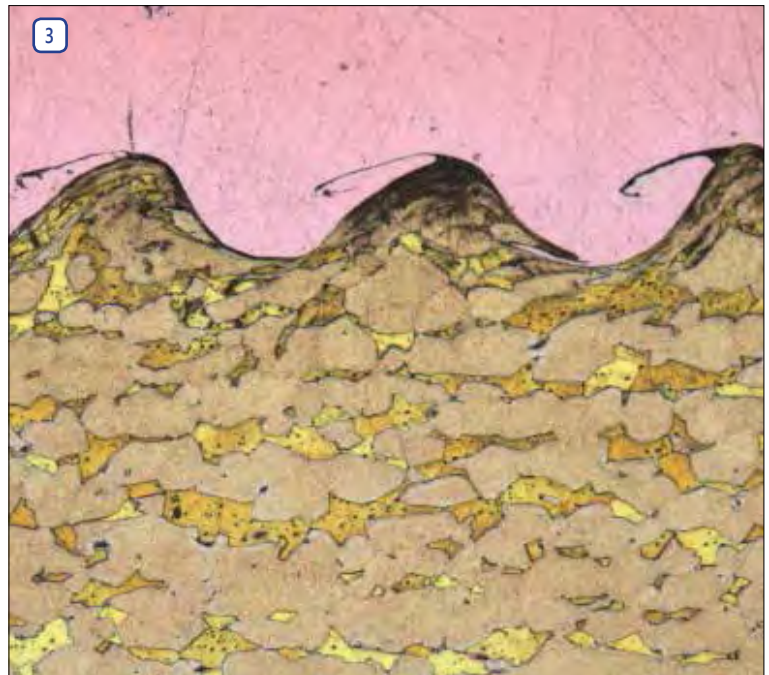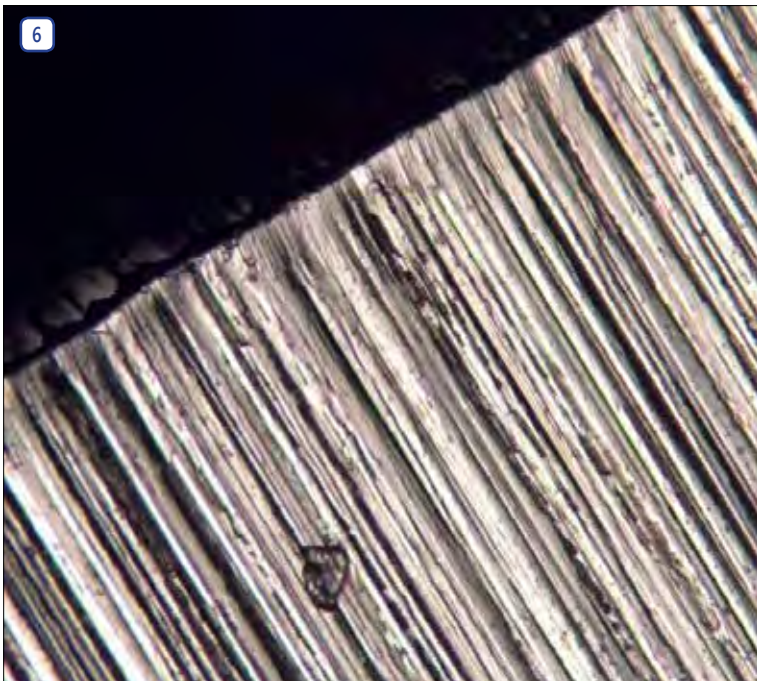Soldered Led Pin - SZP-8 - ST-156 with iris diaphragm module.

Modular Series

Applications

Some application examples demonstrating the versatility of stereomicroscopes with SZM, SZN and SZP heads. Applications in industrial and research are extremely facilitated by the advanced functionality offered.

Legend

1. Matrix LED adjustable incident illuminator on ST-156.
2. SZ-STL2H overhanging stand, SZN-T head and CL-41 flexible arm LED illuminator.
3. Sample of copper-brass weld interface.
4. CL-16.1 LED ring illuminator.
5. Oblique illumination using a CLD-01 cold light generator.
6. Inspection of a steel blade.
7. Applications in electronics manufacturing.
8. CLD-01 LED illuminator with CL-11.1 double-arm optical fiber guide.

MODULAR Series - **Heads**

OPTIKA provides three series of stereomicroscope heads based on different field number, zoom level (and consequently, zoom ratio), inclination, and working distance.
An even more substantial differentiating element is also the optical system: choose between Greenough or Galilean, according to the application.

SZM-B

SZM-T

SZP-10ERGO

SZP-8ERGO

SZN-B

SZP-6ERGO

SZN-T

SZP-10

SZP-8

SZP-6

MODULAR Series - Heads

SZM-B

Greenough, **binocular** stereozoom head with **20mm** field number, infinitely adjustable zoom with **6.43:1** zoom ratio and **100mm** working distance.

SZM-T

Greenough, **trinocular** stereozoom head with **20mm** field number, infinitely adjustable zoom with **6.43:1** zoom ratio and **100mm** working distance

SZN-B

Greenough, **binocular** stereozoom head with large field number (**22mm**), infinitely adjustable zoom with **6.72:1** zoom ratio and **110mm** working distance.

SZN-T

Greenough, **trinocular** stereozoom head with large field number (**22mm**), infinitely adjustable zoom with **6.72:1** zoom ratio and **110mm** working distance.

MODULAR Series - Heads

SZP-6

CMO (Galilean), binocular stereozoom head with large field number (22mm), continuously adjustable zoom with 6.25:1 zoom ratio and 80mm working distance.

SZP-8

CMO (Galilean), binocular stereozoom head with large field number (22mm), continuously adjustable zoom with 8:1 zoom ratio and 80mm working distance.

SZP-10

CMO (Galilean), binocular stereozoom head with large field number (22mm), continuously adjustable zoom with 10:1 zoom ratio and 80mm working distance.

SZP-ERGO

SZP-6ERGO
SZP-8ERGO
SZP-10ERGO

Ergonomic optical heads are also available for SZP Series as SZP-6ERGO, SZP-8ERGO and SZP-10ERGO. They ensure an even more comfortable body posture, settable inclination 0-35° and diopter adjustment on both the eyepieces.

MODULAR Series - Optical performance

SZM Series - Optical performance

Eyepiece	10x (ST-081)		15x (ST-082)		20x (ST-083)	
Field number (mm)	20		15		10	
Objective	Total magnification	Field of View (mm)	Total magnification	Field of View (mm)	Total magnification	Field of View (mm)
0.5x	3.5x-22.5x	57.14-8.88	5.25x-33.75x	28.57-4.44	7x-45x	14.28-2.22
0.75x	5.25x-33.75x	38.10-5.92	7.87x-50.62	19.06-2.96	10.50x-67.5x	9.52-1.48
1x	7x-45x	28.57-4.44	10.5x-67.5x	0.95-2.22	14x-90x	7.14-1.11
1.5x	10.50x-67.5x	19.05-2.96	15.75x-101.25x	9.52-1.48	21x-135x	4.76-0.74
2x	14x-90x	14.28-2.22	21x-135x	7.14-1.11	28x-180x	3.57-0.55

SZN Series - Optical performance

Eyepiece	10x (ST-141)		15x (ST-142)		20x (ST-143)		25x (ST-144)	
Field number (mm)	22		16		12		9	
Objective	Total magnification	Field of View (mm)	Total magnification	Field of View (mm)	Total magnification	Field of View (mm)	Total magnification	Field of View (mm)
0.3x	2.01x – 13.5x	109.45-16.30	3.02x – 20.25x	52.98-7.902	4.02x – 27x	29.85-4.44	5.02x – 33.75x	17.93-2.67
0.5x	3.35x – 22.5x	65.67-9.78	5.02x – 33.75x	31.87-4.74	6.7x – 45x	17.91-2.67	8.37x – 56.25x	10.75-1.6
0.75x	5.02x – 33.75x	43.82-6.52	7.54x – 50.62x	21.22-3.16	10.05x – 67.5x	11.94-1.78	12.56x – 84.37x	7.17-1.07
1x	6.7x – 45x	32.84-4.89	10.05x – 67.5x	15.24-2.37	13.4x – 90x	8.96-1.33	16.75x – 112.5x	5.37-0.80
1.5x	10.05x – 67.5x	21.89-3.26	15.07x – 101.25	10.62-1.58	20.1x – 135x	5.97-0.89	25.12x – 168.75x	3.58-0.53
2x	13.4x – 90x	16.42-2.44	20.1x – 135x	7.96-1.19	26.8x – 180x	4.48-0.67	33.5x – 225x	2.69-0.40

SZP Series - Optical performance

Optical performance SZP-6

Eyepiece	10x		15x		20x	
Field number (mm)	22		15		10	
Objective	Total magnification	Field of View (mm)	Total magnification	Field of View (mm)	Total magnification	Field of View (mm)
0.3x	2.4x-15x	91.7 – 14.7	3.6x – 22.5x	41.7 – 6.7	4.8x – 30x	20.8 – 3.3
0.5x	4x – 25x	55 – 8.8	6x – 37.5x	25 – 4	8x – 50x	12.5 – 2
1x	8x – 50x	27.5 – 4.4	12x – 75x	12.5 – 2	16x – 100x	6.3 – 1
2x	16x – 100x	13.8 – 2.2	24x – 150x	6.3 – 1	32x – 200x	3.1 – 0.5

Optical performance SZP-8

Eyepiece	10x		15x		20x	
Field number (mm)	22		15		10	
Objective	Total magnification	Field of View (mm)	Total magnification	Field of View (mm)	Total magnification	Field of View (mm)
0.3x	2.4x – 19.2x	91.7 – 11.5	3.6x – 28.8x	41.7 – 5.2	4.8x – 38.4x	20.8 – 2.6
0.5x	4x– 32x	55 – 06.9	6x – 48x	25 – 3.1	8x – 64x	12.5 – 1.6
1x	8x – 64x	27.5 – 3.4	12Xx – 96x	12.5 – 1.6	16x – 128x	6.3 – 0.8
2x	16x– 128x	13.8 – 1.7	24x – 192x	6.3 – 0.8	32x – 256x	3.1 – 0.4

Optical performance SZP-10

Eyepiece	10x		15x		20x	
Field number (mm)	22		15		10	
Objective	Total magnification	Field of View (mm)	Total magnification	Field of View (mm)	Total magnification	Field of View (mm)
0.3x	2.4x -24x	91.7 – 9.2	3.6x – 36x	41.7 – 4.2	4.8x – 48x	20.8 – 2.1
0.5x	4x – 40x	55 – 5.5	6x – 60x	25 – 2.5	8x – 80x	11.2 – 1.3
1x	8x – 80x	27.5 – 2.8	12x – 120x	12.5 – 1.3	16x – 160x	6.3 – 0.6
2x	16x – 160x	13.7 – 1.4	24x – 240x	6.3 – 0.6	32x – 320x	3.1 – 0.3

MODULAR Series - **Stands**

An extremely wide stand selection gives you the chance to create your tailored stereomicroscope!
Choose among the several models available to virtually cover every customers' needs, in terms of illumination, arm extension, and focusing system.
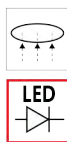

SZ-STLX

ST-150

ST-151

ST-152

SZ-STL5LED

SZ-STL5

ST-153

SZ-STL2H

ST-155

SZ-STL1H

SZ-STL8

ST-156

MODULAR Series - Stands

ST-150

Large, simple plain stand with head holder and focusing mechanism. **Pillar type.**
Base size: 320x280mm. Pillar size: Ø32x360mm.

ST-151

Large plain stand with **settable LED transmitted illumination**, head holder and focusing mechanism. **Pillar type.**
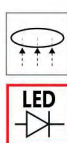Base size: 320x280mm. Pillar size: Ø32x360mm.

ST-152

Large, simple plain stand with head holder and focusing mechanism. **Fixed arm type.**
Base size: 320x280mm. Pillar size: 360mm.

ST-153

Large plain stand with **settable LED transmitted illumination**, head holder and focusing mechanism. **Fixed arm type.**
Base size: 320x280mm. Pillar size: 360mm.

ST-155

ST-155 and SZP-8 head

Modern, large plain stand equipped with **LED transmitted and incident illumination**, both with **intensity control.** It comes complete of head holder and focusing mechanism.
Base size: 330x285mm. Height: 38mm. Pillar: 340mm.
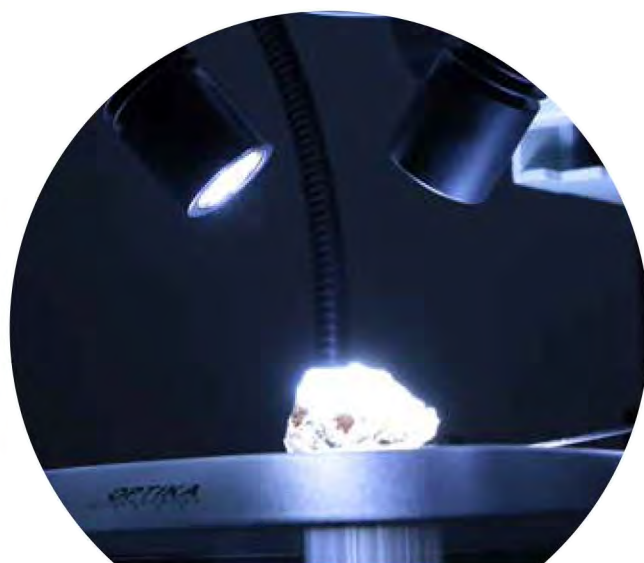Head not included.

ST-156

ST-156 and SZP-8 head

Modern, large plain stand equipped with **LED transmitted and incident illumination**, both with **intensity control.** It comes complete of head holder and **coaxial coarse and fine focusing system.** Base size: 330x285mm. Height: 38mm. Pillar: 340mm.
Head not included.

SZ-STL8

X-LED³
lighting system

Modern stand equipped with the **exclusive X-LED³ lighting system** located in two flexible arms and extra-large **settable LED transmitted illumination** for enhanced brightness and improved sample observation.
Base size: 270x205mm. Height: 30mm.
Pillar: Ø32x310mm.

MODULAR Series - Stands

SZ-STL1H

Extremely stable overhanging stand **complete of head** holder and focusing **system** for perpendicular observation of particularly large specimens.
Smooth horizontal and vertical movement are ensured.
In case illumination is needed, choose from the wide choice of **external illuminators** available.

Base dimensions: 230x230mm.
Pillar: Ø32x420mm.
Horizontal arm: 450mm.
Head not included.

SZ-STL2H

Extremely stable, hinged and long overhanging stand complete of head holder and focusing system for observation of particularly large specimens.
The head can be easily tilted for inspection at **oblique angles** ideal e.g. for stone setters. **Smooth horizontal and vertical movement** are ensured.
In case illumination is needed, choose from the wide choice of **external illuminators** available.

Base dimensions: 260x210mm.
Pillar: Ø32x420mm.
Horizontal arm: 550mm.
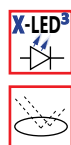Head not included.

SZ-STL5

SZ-STL5L and SNZ-T head

**Wall mount & table clamp,
both included**

Highly versatile flexible arm stand, 360°rotating, ideal for industrial applications. It comes complete of **head holder with focusing system** and all the supports for **table clamp and wall mount. Small footprint** is ensured when not in use, saving valuable space on the bench. Head not included.

SZ-STL5LED

**Mechanical component
SZ-STL5LED and SZM-T**

Highly versatile flexible arm stand, 360°rotating, ideal for industrial applications.
It comes complete of the settable and **exclusive X-LED³ incident illumination system**, head holder with focusing system and all the supports for **table clamp and wall mount**.
Small footprint is ensured when not in use, saving valuable space on the bench.
Head not included

SZ-STL5LED and SZP-8 head

SZ-STLX

SZ-STLX and SNZ-B head

Extremely stable, long overhanging stand complete of head holder and focusing system for observation of particularly large specimens. The head can be easily **swivelled** and **tilted** for inspection at **oblique angles. Smooth horizontal and vertical movements** are ensured. In case illumination is needed, choose from the wide choice of **external illuminators** available.

Base dimensions: 210×257 mm.
Pillar: Ø32×425 mm.
Horizontal arm: 750 mm (movement range 330 mm).
Swivel: 360°
Tilt: 180°
Weight: 16.25 kg
Head not included.

MODULAR Series - **Accessories**

Most of the time, it is of fundamental importance to combine a stereomicroscope with the right accessories, such as attachments, illuminators to provide an efficient illumination and achieve the best working conditions possible. and moving or heating stages are necessary for some specific applications.

SZP-FL

M-666

CLD-01

ST-666

CL-30

ST-111

CL-31

ST-110

CL-41

ST-100

CL-11.1

CL-12

CL-16.1

CL-20

SZP-FL Series

> **Attachment for fluorescence applications for SZP stereomicroscopes only.**
> Used in many applications like biology, botany, electronics, materials, forensics. Equipped with HBO 100W mercury lamp illuminator.
> *To be combined with ST-150 or ST-151 stand.*

SZP-6

SZP-8

SZP-10

SZP-ERGO

ST-150

ST-151

Part	Description
Description	Fluorescence attachment for SZP stereomicroscopes. Fluorescence observation for biology, industrial inspection, criminal justice, etc. Essential tool for security printing and mineral research.
Filterset	Standard: GFP-B (EX460-500, DM505, BA510-560) GFP-L (EX460-500, DM505, BA510)
Illumination	100W HBO high-pressure mercury bulb. Average lamp lifetime: 400 hours. Input voltage: 110/240Vac, 50/60Hz, 1A ; Fuse: F8AL 250V. Maximum input power: 125W. Current and time counter LED displays.
Photo & Video Attachment	Trinocular output port

CL Series - Illuminators

CLD-01

`14WLED`

Flexible and professional cold light illuminator with high power, extra-efficiency **14W LED** system, **extremely bright and uniform**. Optical power: **1000 lumen**. Brightness control potentiometer, external power supply.

CLD-01 with CL-11.1

CLD-01 Accessories
The output can be coupled to the following accessories:
CL-11.1: Double-arm optical fiber guide with focusing lenses. Arm length 500 mm.
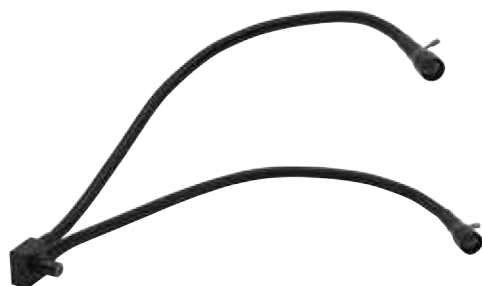**CL-17.1**: Polarizing filters (pair) for CL-11.1.
CL-12: Ring optical fiber guide (length 700 mm).
Guide diameter 16 mm.
Diameter of the fixing ring: 55mm.
The circular end is suitable for all stereo series.

Mechanical component
CLD-01 + CL-11.1

CL-11.1

Double-arm guide for CLD-01, with focusing lenses.
Arm length 500 mm. Each arm fitted with focusable lens adapter.
Illuminance (at 10 cm distance): **70.000 lux**.
Optional accessory:
CL-17: lens pair with built-in linear polarizer.

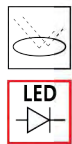## CL-12

Ring optical fiber guide for CLD-01.
Lenght 700 mm, diameter 16 mm.
The circular end is suitable for all series, by using the three locking screws. Diameter of the fixing ring: 55mm.
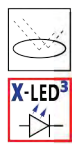Illuminance (at 10 cm distance): **40.000 lux**.

CL Series - **Illuminators**

CL-30

LED

Double-arm Led illuminator. **Light sources:** LED (x2);
With 2W high efficiency LEDs. **Chromaticity coordinates:** (x,y): 0.320,
0.320; **Luminous flux:** 80 lm each arm;
Emission angle: 35°. Without brightness control.

CL-31

LED

Double-arm Led illuminator, with brightness control.
Light sources: LED (x2); With 2W high efficiency LEDs.
Chromaticity coordinates: (x,y): 0.320, 0.320;
Luminous flux: 80 lm each arm; **Emission angle:** 35°.

CL-41

X-LED³

Double-arm X-LED³ illuminator, with brightness control.
Light sources: With 3,6W high efficiency X-LED³.
Chromaticity coordinates: (x,y): 0.320, 0.320;
Luminous flux: 400 lm each arm; **Emission angle:** 25°;

CL-14

LED

56-LED ring light illuminator, with brightness control.
Compact, with 360° rotating ring connector and 50-250 mm working
distance. Illuminance (at 10 cm distance): > 8.000 lux.
Suitable for LAB, SZM and SZN.

CL Series - Illuminators

CL-16.1

SZM-T with CL-16.1

Professional lighting system including 144 LEDs (2W total power) for enhanced light uniformity and brightness.
The ring light illumination is divided into 4 different zones, individually adjustable for **selectable light zones**.
The **separated, external control panel** prevents interferences during use, whilst the sturdy metal structure makes it **more durable and resistant**.
Diameter of the fixing ring: 60mm.

ST Series - Stages

ST-100 & ST-100.1

Hand moving stage
Dimensions: 185x145mm.
Range: 56mm (X) x 35mm (Y).
> ST-100: model for SZM-1 and SZM-2.
> ST-100.1: model for SZM-LED1, SZM-LED2 and SZN.
Please note that this item cannot be combined with SZN-5, SZN-6 and SZ-STL8. Specific versions available also for other models.

ST-110 & ST-110.1

Moving stage, with knobs
Manual positioning stage, using knobs for X-Y movements.
Dimensions: 180x155mm. Range: 75mm (X) x 54mm (Y).
> ST-110: model for SZM-1 and SZM-2.
> ST-110.1: model for SZM-LED1, SZM-LED2 and SZN.
Please note that this item cannot be combined with SZN-5, SZN-6 and SZ-STL8. Specific versions available also for other models.

ST Series - **Stages**

ST-111 & ST-111.1

ST-666 & ST-666.1

Moving stage, with micrometer screws
Manual positioning stage, using micrometer screws.
Dimensions: 185x145mm. Range: 25mm (X) x 25mm (Y).
Micrometer screws resolution: 0.01mm.
> ST-111: model for SZM-1 and SZM-2.
> ST-111.1: model for SZM-LED1, SZM-LED2 and SZN.
Please note that this item cannot be combined with SZN-5, SZN-6 and SZ-STL8. Specific versions available also for other models.

Heating stage, round
Temperature range: 20°C (room temperature) – 50°C.
Temperature setting resolution: 1°C. Temperature measuring resolution: 0.1°C. Display: LED display for set temperature.
LED display for measured temperature.
> ST-666: model for SZM-1 and SZM-2.
> ST-666.1: model for SZM-LED1, SZM-LED2, SZN and SZ-STL8.
Specific versions available also for other models.

MODULAR Series - Accessories

ACCESSORIES FOR SZM-B / SZM-T

ST-081	Eyepieces (pair) WF10x/20 mm.
ST-082	Eyepieces (pair) WF15x/15 mm.
ST-083	Eyepieces (pair) WF20x/10 mm.
ST-084	Eyepiece micrometer WF10x/20 mm, 10mm/100um.
ST-085	Additional lens 0.5x (w.d. 165mm).
ST-091	Additional lens 0.75x (w.d. 117mm).
ST-086	Additional lens 1.5x (w.d. 47mm).
ST-087	Additional lens 2x (w.d. 33mm).
ST-089	Reflex camera adapter for FULL FRAME sensor.
ST-090	Focusable C-Mount adapter for 1/3″ sensor.
ST-090.1	Focusable C-Mount adapter for 1/2″ sensor.
M-173	Photo adapter for APS-C and Full Frame Reflex cameras.
M-114	C-Mount adapter for 1/2″ sensor.
M-115	C-Mount adapter for 1/3″ sensor.
M-116	C-Mount adapter for 2/3″ sensor.
M-005	Micrometer slide for software calibration, 1mm/10um, 10mm/100um.
DC-002	Plastic dust cover, medium.
15104	Cleaning kit.

ACCESSORIES FOR SZN-B / SZN-T

ST-141	Eyepieces (pair) WF10x/22mm.
ST-142	Eyepieces (pair) WF15x/16mm.
ST-143	Eyepieces (pair) WF20x/12mm.
ST-144	Eyepieces (pair) WF25x/9mm.
ST-145	Eyepiece micrometer WF10x/22mm, 10mm/100um.
SAO0.3	Additional lens 0.3x (w.d. 287mm).
SAO0.5	Additional lens 0.5x (w.d. 185mm).
SAO0.75	Additional lens 0.7x (w.d. 120mm).
SAO1.5	Additional lens 1.5x (w.d. 49mm).
SAO2	Additional lens 2x (w.d. 28mm).
ST-146	Photo adapter for REFLEX camera with FULL FRAME sensor.
ST-147	Focusable C-Mount adapter for 1/3″ sensor.
ST-147.1	Focusable C-Mount adapter for 1/2″ sensor.
M-173	Photo adapter for APS-C and Full Frame Reflex cameras.
M-114	C-Mount adapter for 1/2″ sensor.
M-115	C-Mount adapter for 1/3″ sensor.
M-116	C-Mount adapter for 2/3″ sensor.
M-113.1	Ring adapter, 30mm (for monocular and binocular microscopes).
M-005	Micrometer slide for software calibration, 1mm/10um, 10mm/100um.
DC-002	Plastic dust cover, medium.
15104	Cleaning kit.

ACCESSORIES FOR SZP

ST-160	Eyepiece (pair) WF10x/22mm.
ST-161	Eyepiece (pair) WF15x/15mm.
ST-162	Eyepiece (pair) WF20x/12mm.
ST-163	Eyepiece micrometer WF10x/22mm, 10mm/100um.
ST-165	Objective 0.3x (w.d. 280mm).
ST-166	Objective 0.5x (w.d. 118mm).
ST-167	Objective 2x (w.d. 32,5mm).
ST-170	Photo/Video beam splitter - 1 port.
ST-171	Photo/Video beam splitter - 2 ports.
ST-172	Iris diaphragm module.
M-173	Photo adapter for APS-C and Full Frame Reflex cameras.
ST-174	Focusable C-Mount adapter for 1/3″ sensor.
M-114	C-Mount adapter for 1/2″ sensor.
M-115	C-Mount adapter for 1/3″ sensor.
M-116	C-Mount adapter for 2/3″ sensor.
M-113.1	Ring adapter, 30mm (for monocular and binocular microscopes).
ST-176	Protective glass for SZP Series.
M-005	Micrometer slide for software calibration, 1mm/10um, 10mm/100um.
DC-002	Plastic dust cover, medium.
15104	Cleaning kit.

15104 - Lens cleaner, 50ml
It cleans glass quickly and effectively, without leaving residue or odor.
Ideal for precision lens or prism cleaning.

How to connect the cameras to our microscopes.
Please refer to the Adapter reference list on Digital section.

GEMOLOGY Series

Stereozoom Microscopes For Gemology
OPTIGEM-1 / OPTIGEM-2 / OPTIGEM-3 / OPTIGEM-4 / SZM-GEM-1 / SZM-GEM-2