OPTIKA®
MICROSCOPES
ITALY

INSPECTION & INDUSTRIAL Microscopes

INSPECTION & INDUSTRIAL Microscopes

Icons

- Field number
- Incident light
- Transmitted light
- LED illuminator
- X-LED illuminator
- Automatic light control
- Multi-Plug low voltage power supply
- Infinity corrected optics
- N-Plan objectives (up to 20mm f.o.v)
- W-Plan objectives (up to 22mm f.o.v)
- U-Plan objectives (up to 24mm f.o.v)
- Oil/Water 100x objective
- Fluorescence
- Metallography
- Polarized light
- Darkfield
- Phase contrast
- USB connection
- Tablet screen size
- Camera resolution
- Software included
- HDMI output
- MicroSD slot
- Wi-Fi
- BlueTooth
- IVD Available *
- Antibacteria treatment available

OPTIKA®
MICROSCOPES
ITALY

SLX Series

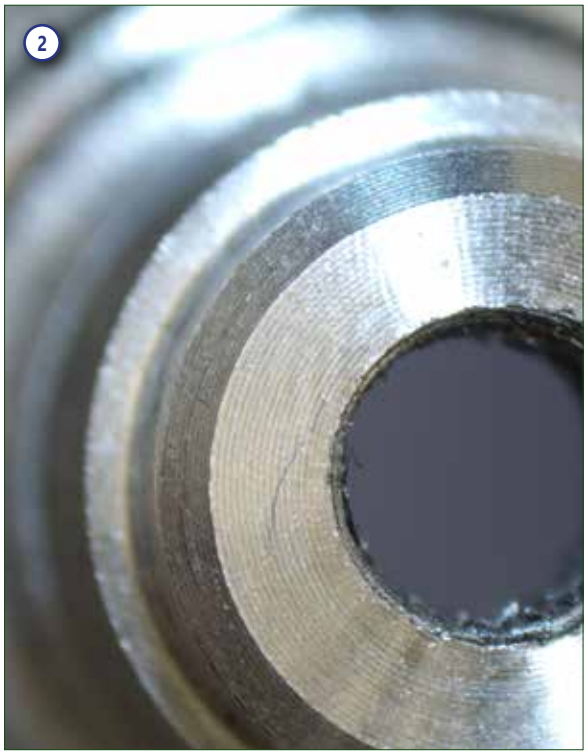
Stereomicroscopes For Higher Education & Laboratory

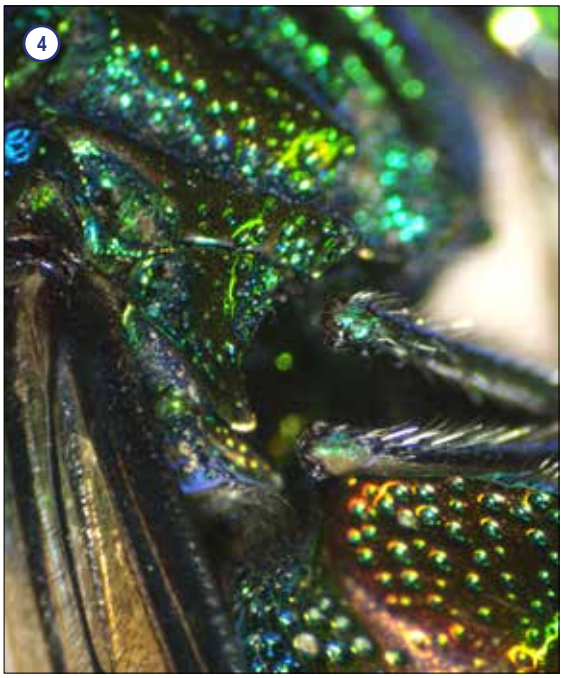
Extremely Versatile Cordless Stereo & Stereozoom Microscopes

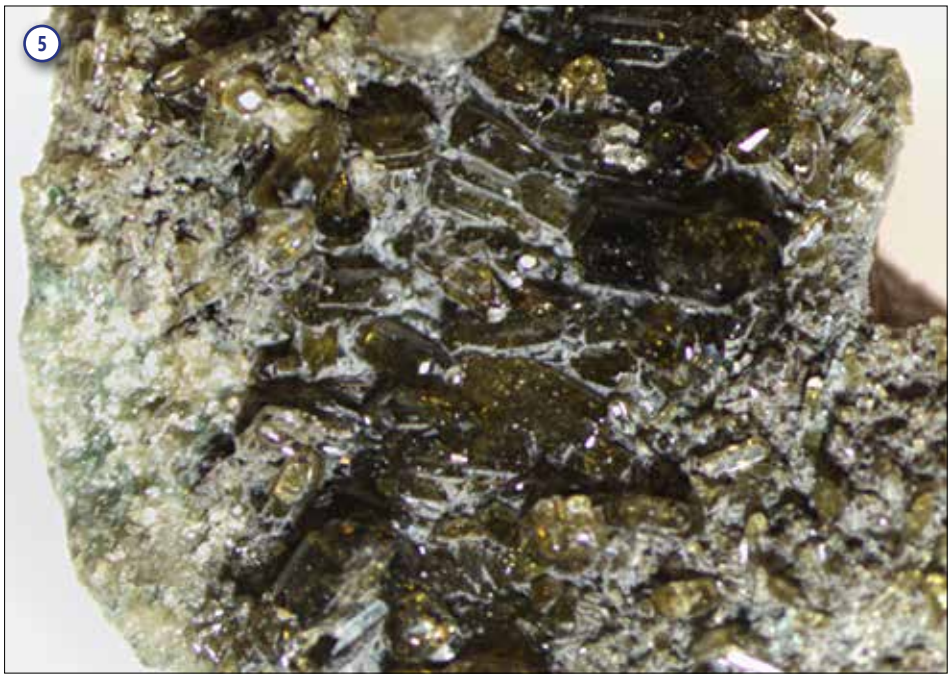
PROFESSIONAL FEATURES FOR... WELL, EVERYONE
» Level up skills and become a professional user
» 3D Greenough view for high resoluted images & large field depth
» 6.43:1 ratio - 7x ... 45x - or turnable objective - 2x, 4x - on 21 mm
» Compact, practical and intuitive to use
» Sturdy and durable for extended lifetime

THE LONGEST AUTONOMY ON THE MARKET
» Longlife LED illumination (providing over 20 years of use)
» Ultra-flat base with Ø 100 mm disc for diffused transmitted light
» Cordless use, totally independent from mains/batteries connection
» Freely settable illumination - incident, oblique and transmitted light
» External power supply for enhanced safety and convenient servicing

SLX Series







Legend

1. Aluminum - SLX-1 and 4x objective.
2. Component worked on lathe - SLX-2 and 3x zoom.
3. Wasp - SLX-3 and 4x zoom.
4. Fly, detail - SLX-2 and 4.5x zoom.
5. Rock - SLX-2 - 1.5x zoom.

SLX Series

Valuable configurations of cordless and modern stereo & stereozoom microscopes ideal for a variety of applications, including dissection, biology, entomology, anatomy, chemistry, material science among the others and even industrial purposes.
Provided with dual magnification or **6.43:1 zoom ratio, FN 21** high eyepoint eyepieces, high-grade precise fixed arm with focus and handle with the latest technology of **EcoLED™** illumination plus rechargeable batteries. Slim and easy to carry, all the models with high-grade precise fixed arm are equipped with long lasting **LED** illumination to provide over 20 years of use.

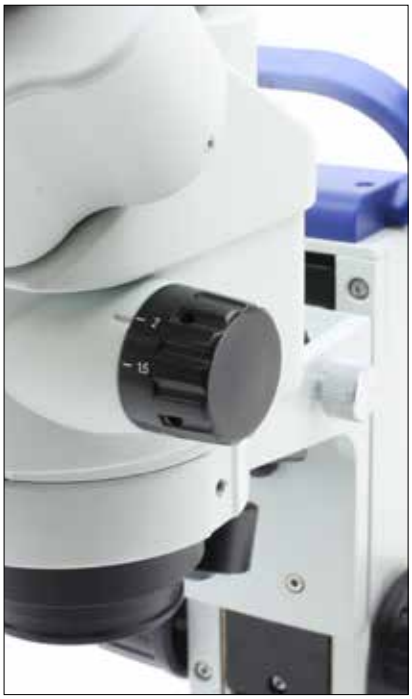
High eyepoint eyepieces for glasses wearers
These eyepieces are designed in such a way that the exit pupil is further away from the eye lens than standard eyepieces, being are well suited for eyeglasses wearers

The longest autonomy on the market ensured by EcoLED™
OPTIKA has re-designed illumination in microscopy, once again: a special coating process on optics combined with a new, higher ratio between low consumptions and ultra-efficiency has addressed us to top brightness levels

6.43:1 zoom ratio - zoom magnification from 7x to 45x
Purposely designed for professional routine inspections, the total magnification can be even extended to 135x with 20x eyepieces and 1.5x additional lens, obtaining an excellent results in this class

Ultra-flat base with Ø 100 mm disc for diffused transmitted light
A new level of ergonomy and comfort is achieved during operations, with the ultra-flat base of only 3 cm height to ensure smooth specimen movement and the Ø 100 mm for top class diffusion of the transmitted light

Stereomicroscopes For Higher Education & Laboratory



Longlife LED illumination (providing over 20 years of use)
Money & energy saving thanks to LED long lifetime (65.000 hours, 22 years in case of 8 hours/day) which is more than 20 times compared to a standard halogen bulb.

Cordless use, totally independent from mains/batteries connection
All models work with or without the batteries in place with three NiMH rechargeable batteries (not included) for the longest autonomy in outdoor use (12-hour autonomy, at medium intensity).

External power supply for enhanced safety and convenient servicing
OPTIKA's safety first approach drives to the use of a low voltage, multi-plug, external power supply in order to prevent any risk of electric shock and heatflow inside the unit.

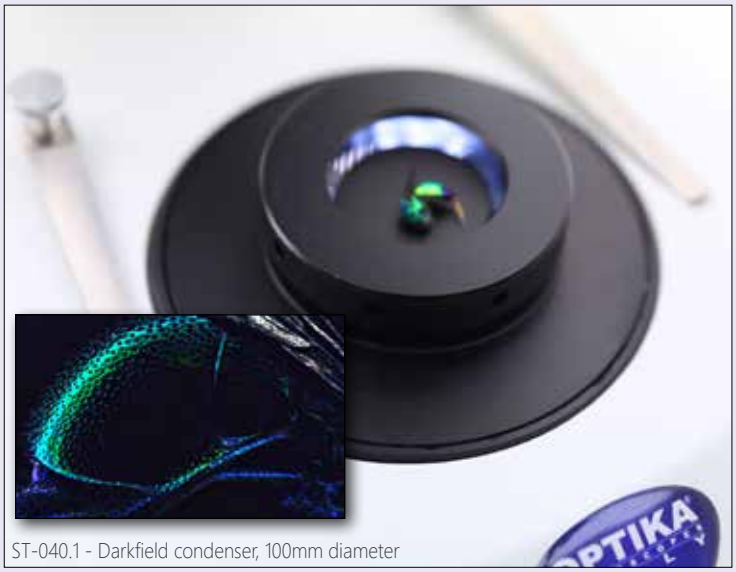
SLX Series - Get the most out of our accessories

Additional Lenses
Simply to be screwed into the threads below the objectives of SLX-2 and SLX-3 to either increase or decrease total magnification, or to increase the working distance when users need to work with hands under the microscope

ST-091 - Additional lens 0.75x

ST-085.1 - Additional lens 0.5x (w.d. 165mm) with SZ-EXT

ST-040.1 - Darkfield condenser
This is a darkfield condenser for stereo microscopes with bottom light and 100 mm round working plate to provide darkfield microscopy features, fitting all OPTIKA stereomicroscopes with 100 mm mounting size and transmitted light



ST-040.1 - Darkfield condenser, 100mm diameter

SLX Series - Range

SLX-1

Cordless binocular stereomicroscope ideal for students, schools and amateurs to dissect and discover mainly biology and materials science in 3D, with turnable objective (2x-4x), FN 21 high eyepoint, precision fixed arm with handle and the latest technology of EcoLED™ illumination plus rechargeable batteries (not included). Slim and easy to carry, it is equipped with long lasting LED illumination to provide over 20 years of use.

Head: Binocular, 45° inclined; 360° rotating.

Dioptric adjustment: Left eyepiece.

Eyepieces: WF10x/21 mm, high eyepoint, secured by screw and with rubber cups.

Objective: Achromatic 2x-4x with anti-fungus treatment.

Working distance: 100 mm.

Stand: High-grade, precision fixed with handle and focus.

Focusing: Rack and pinion focusing mechanism.

Illumination: EcoLED™ swiveling incident and transmitted, with brightness control, rechargeable batteries (not included).
Color temperature: 6,300 K.
Multi-plug 100-240Vac/5Vdc external power supply.

SLX-2

Cordless binocular stereozoom microscope ideal for students, schools and amateurs to dissect and discover mainly biology and materials science in 3D, with 0.7x...4.5x zoom, FN 21 high eyepoint, precision fixed arm with handle and the latest technology of EcoLED™ illumination plus rechargeable batteries (not included). Slim and easy to carry, it is equipped with long lasting LED illumination to provide over 20 years of use.

Head: Binocular, 45° inclined; 360° rotating.

Dioptric adjustment: Both eyepieces.

Eyepieces: WF10x/21 mm, high eyepoint, secured by screw and with rubber cups.

Objective: Parfocal achromatic zoom 0.7x...4.5x (6.43:1 ratio) with anti-fungus treatment.

Working distance: 100 mm.

Stand: High-grade, precision fixed with handle and focus.

Focusing: Rack and pinion focusing mechanism.

Illumination: EcoLED™ swiveling incident and transmitted, with brightness control, rechargeable batteries (not included).
Color temperature: 6,300 K.
Multi-plug 100-240Vac/5Vdc external power supply.

SLX Series - Range

SLX-3

Cordless trinocular stereozoom microscope ideal for students, schools and amateurs to dissect and discover mainly biology and materials science in 3D, with 0.7x...4.5x zoom, FN 21 high eyepoint, precision fixed arm with handle and the latest technology of EcoLED™ illumination plus rechargeable batteries (not included). Slim and easy to carry, it is equipped with long lasting LED illumination to provide over 20 years of use.

Head: Trinocular (split ratio: 50/50), 45° inclined; 360° rotating.

Dioptric adjustment: Both eyepieces.

Eyepieces: WF10x/21 mm, high eyepoint, secured by screw and with rubber cups.

Objective: Parfocal achromatic zoom 0.7x...4.5x (6.43:1 ratio) with anti-fungus treatment.

Working distance: 100 mm

Stand: High-grade, precision fixed with handle and focus.

Focusing: Rack and pinion focusing mechanism.

Illumination: EcoLED™ swiveling incident and transmitted, with brightness control, rechargeable batteries (not included). Color temperature: 6,300 K. Multi-plug 100-240Vac/5Vdc external power supply.

SLX Series - Range

SLX-4 / SLX-5

SLX-5

Binocular (SLX-4) or trinocular (SLX-5) stereomicroscope with Extremely stable, long overhanging stand for observation of particularly large specimens to be matched with a focusing system and stereozoom head. Smooth horizontal and vertical movements are ensured and the head can be easily swivelled for inspection at oblique angles. In case illumination is needed, choose from the wide choice of external illuminators available.

Head:
SLX-4: Binocular, 45° inclined; 360° rotating.
SLX-5: Trinocular (split ratio: 50/50), 45° inclined; 360° rotating.

Dioptric adjustment: Both eyepieces.

Eyepieces: WF10x/21 mm, high eyepoint, secured by screw and with rubber cups.

Objective: Parfocal achromatic zoom 0.7x...4.5x (6.43:1 ratio) with anti-fungus treatment.

Working distance: 100 mm.

Focusing: Rack and pinion mechanism controlled by a pair of knobs placed on both sides of the stand.

Stand: Overhanging stand 420 mm high, 430 mm horizontal arm length, base 230x230 mm with following adjustments: heigh, longitudinal extension and head rotation angle (left-right).

SLX Series - Comparison Chart

Model	Head	Eyepieces	Objective	Working Distance	Stand	Illumination
SLX-1	Binocular 45° inclined 360° rotating	WF 10x/21	2x – 4x selectable	100 mm	High-grade, precision fixed with handle and focus	**EcoLED™** swiveling incident and transmitted with brightness control, rechargeable batteries (not included)
SLX-2	Binocular 45° inclined 360° rotating	WF 10x/21	0.7x...4.5x zoom	100 mm	High-grade, precision fixed with handle and focus	**EcoLED™** swiveling incident and transmitted with brightness control, rechargeable batteries (not included)
SLX-3	Trinocular (50/50) 45° inclined 360° rotating	WF 10x/21	0.7x...4.5x zoom	100 mm	High-grade, precision fixed with handle and focus	**EcoLED™** swiveling incident and transmitted with brightness control, rechargeable batteries (not included)
SLX-4	Binocular 45° inclined 360° rotating	WF 10x/21	0.7x...4.5x zoom	100 mm	Overhanging stand	Without illumination; External light source needed
SLX-5	Trinocular (50/50) 45° inclined 360° rotating	WF 10x/21	0.7x...4.5x zoom	100 mm	Overhanging stand	Without illumination; External light source needed

Optical performance SLX-1

Eyepiece	10x (ST-081)		15x (ST-082)		20x (ST-083)		10x (ST-084)	
Field number (mm)	**21**		**15**		**10**		**21**	
Additional lens	**Total magnification**	**Field of View (mm)**	**Total magnification**	**Field of View (mm)**	**Total magnification**	**Field of View (mm)**	**Total magnification**	**Field of View (mm)**
1x	20x - 40x	10.50 - 5.25	30x - 60x	7.50 - 3.75	40x - 80x	5.00 - 2.50	20x - 40x	10.50 - 5.25

Optical performance SLX-2 - SLX-3 - SLX-4 - SLX-5

Eyepiece	10x (ST-081)		15x (ST-082)		20x (ST-083)		10x (ST-084)	
Field number (mm)	**21**		**15**		**10**		**21**	
Additional lens	**Total magnification**	**Field of View (mm)**	**Total magnification**	**Field of View (mm)**	**Total magnification**	**Field of View (mm)**	**Total magnification**	**Field of View (mm)**
0.5x	3.5x - 22.5x	60.00 - 9.33	5.25x - 33.75x	42.86 - 6.67	7x - 45x	28.57 - 4.44	3.5x - 22.5x	60.00 - 9.33
0.75x	5,25x - 33.75x	40.00 - 6.22	7.875x - 50.625x	28.57 - 4.44	10.5x - 67.5x	19.05 - 2.96	5.25x - 33.75x	40.00 - 6.22
1x	7x - 45x	30.00 - 4.67	10.5x - 67.5x	21.43 - 3.33	14x - 90x	14.29 - 2.22	7x - 45x	30.00 - 4.67
1.5x	10.5x - 67.5x	20.00 - 3.11	15.75x - 101.25x	14.29 - 2.22	21x - 135x	9.52 - 1.48	10.5x - 67.5x	20.00 - 3.11

SLX Series - Accessories

Eyecups & Eyepieces

ST-036	Eyecups (pair), flat
ST-081	EW10x/21 eyepieces (pair), high eyepoint, with rubber cup
ST-082	WF15x/15 eyepieces (pair), high eyepoint
ST-083	WF20x/10 eyepieces (pair), high eyepoint
ST-084	WF10x/21 micrometric eyepiece, high eyepoint, with rubber cup

Additional Lenses

ST-085.1	Additional lens 0.5x (w.d. 165mm) with SZ-EXT (except for SLX-1)
ST-091	Additional lens 0.75x (w.d. 105mm) (except for SLX-1)
ST-086.1	Additional lens 1.5x (w.d. 45mm) with compensating disc (except for SLX-1)
ST-087	Additional lens 2x (w.d. 33mm) (only for SLX-4 & SLX-5)

Stages

ST-100.1	Hand moving stage, 100mm diameter
ST-110.1	Moving stage, coaxial knobs, 100mm diameter
ST-111.1	Moving stage, micrometric screws, 100mm diameter

Condensers & Filters

ST-040.1	Darkfield condenser, 100mm diameter
ST-088.1	Polarising set (filters and rotating stage), 100mm diameter

Camera Adapters

M-113.1	Ring adapter, 30mm (for monocular and binocular microscopes)
M-115	0.35x C-Mount projection lens
M-114	0.5x C-Mount projection lens
M-118	0.75x C-Mount projection lens
M-173	C-Mount projection lens for APS-C/full frame reflex cameras (trino)
M-699	Universal adapter for C-Mount projection lens (trino)
M-620	0.35x focusable C-Mount adapter
M-620.1	0.5x focusable C-Mount adapter
M-620.2	0.65x focusable C-Mount adapter
M-620.3	1x focusable C-Mount adapter

Miscellaneous

15104	Cleaning kit
DC-002	Plastic dust cover, medium, 490(l)x490(h) mm (only for SLX-1, SLX-2 and SLX-3)
DC-004	TNT dust cover, large, 700(l)x550(h) mm (only for SLX-4 & SLX-5)
M-005	Micrometric slide, 26x76mm, with 2 scales (1mm/100 & 10mm/100)
ST-041	Sample clip
ST-042	White/black object-plate, 100mm diameter
ST-043	Glass object-plate, 100mm diameter
ST-092	Protective glass for stereohead
VP-SLX	IQ/OQ/PQ manual for SLX series
AB-020	Antibacterial surface treatment, only for newly purchased microscope

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

15104 - Cleaning kit
It cleans glass quickly and effectively,
without leaving residue or odor.
Ideal for precision lens or prism cleaning.

Headquarters and Manufacturing Facilities

OPTIKA® S.r.l. Via Rigla, 30 - 24010 Ponteranica (BG) - ITALY - Tel.: +39 035.571.392 - info@optikamicroscopes.com

Optika Sales branches

OPTIKA® Spain spain@optikamicroscopes.com
OPTIKA® China china@optikamicroscopes.com
OPTIKA® India india@optikamicroscopes.com
OPTIKA® North America namerica@optikamicroscopes.com
OPTIKA® Central America camerica@optikamicroscopes.com
OPTIKA® Africa africa@optikamicroscopes.com

OPTIKA®
MICROSCOPES
ITALY

SZ Series

Stereozoom Microscopes For Laboratory & Industry

FIELD OF VIEW - 23 mm Full Plan Field of View

10x/22mm or 10x/23mm PLAN EYEPIECES
Plan eyepieces with 22 or 23 mm field of view; high eye-point type, also suitable for the use of eyeglasses.

ZOOM OBJECTIVE
The High-Grade Zoom Objective ensures a sharp and clear vision. With a zoom ratio of 6.72:1 or 8.46:1 it makes this series a perfect instrument for any application.

CLICK-STOP DETENTS
On SZO Heads the zoom objective is equipped with a precise click-stop mechanism which makes easy to quickly find the default zoom positions: 0.67x, 0.80x, 1x, 1.2x, 1.5x, 2x, 2.5x, 3x, 3.5x, 4x, and 4.5x.

X-LED - Two Times Brighter Than Any Other

X-LED: A SEA OF LIGHT

Where present, stands' illuminators are equipped with X-LED systems:
- the incident illuminator with **X-LED³** (single LED, 3.6W)
- the transmitted illuminator with **X-LED^{T1-T3}** (12 or 60 LEDs)

X-LED: RESPECTING COLORS

With 6,300K color temperature the specimens are illuminated with the most natural light. It allows to respect their colors, without altering the nuances.

X-LED^{T3}: SIMPLY UNMATCHABLE

Top class illuminator for transmitted light. With up to 60 LEDs geometrically arranged, it grants a perfect light uniformity and the observation of large samples thanks to its 10cm diameter.

Multi-plug power supply

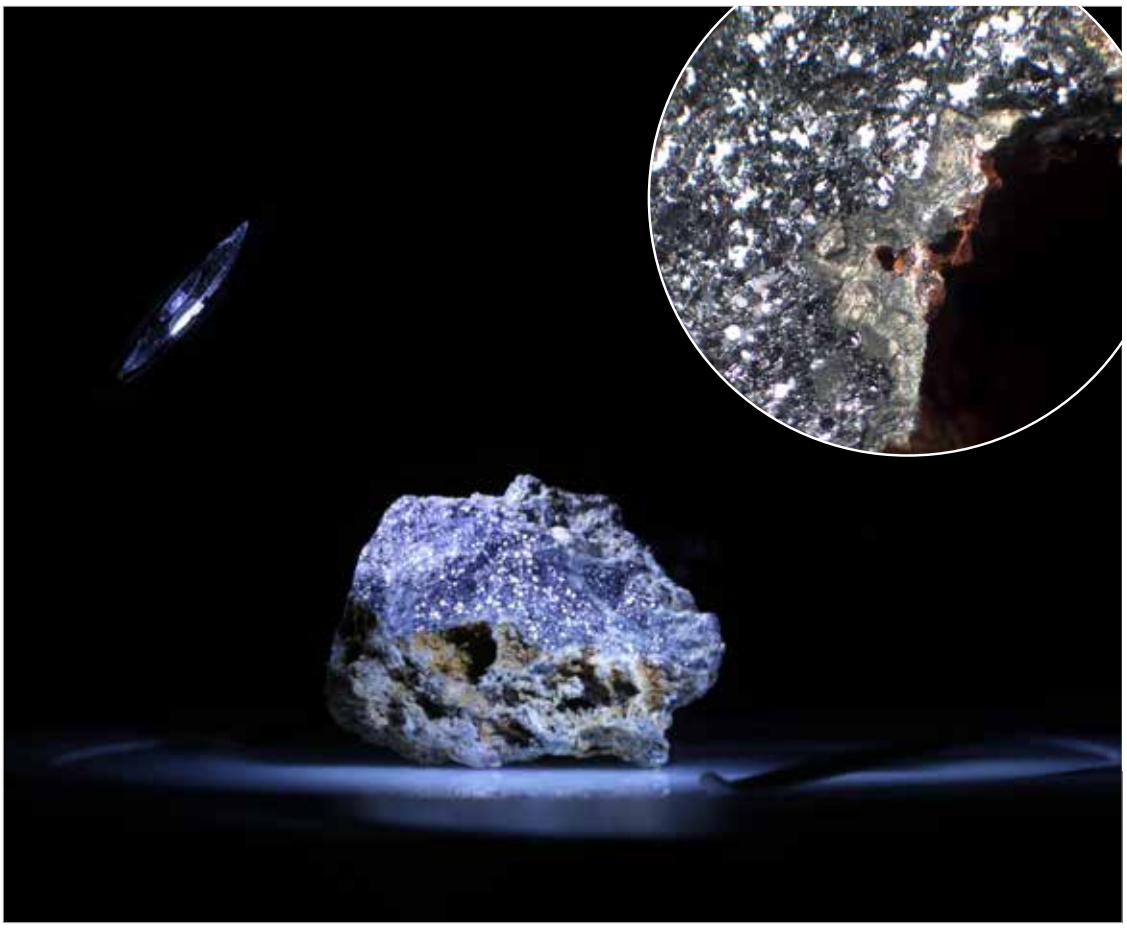
SZ Series

Greenough Optical System

The V-shape optical path of Greenough allows us to design a very compact and a slim unit, highly versatile and appreciated for the 3D viewing. Samples with significant depth can be quickly inspected. Binocular and trinocular heads are 45° inclined to ensure comfortable posture to the user even after several hours of operation.

Zoom Ratio

SZ Series has 0.67x-4.5x or 0.65x-5.5x zoom range (6.72:1 or 8.46:1 zoom ratio, depending on the head), being purposely designed for routine and advanced inspections. These zoom ratios enable most samples to be observed at the appropriate magnifications. When combined with proper accessories (2x additional lens and 25x eyepieces), SZX-A delivers excellent image quality up to 275x.



X-LED Exclusive Lighting Source

Special technology able to double the light intensity for incomparable performance, ensuring constant pure-white colour temperature.
Relevant money & energy saving thanks to the incredibly low energy consumptions allow you to cut the electricity bills by 90%!

Stereozoom Microscopes For Laboratory & Industry

Overhanging Stands, In Case Of Large Samples
These stands are 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.

Large Working Distance And Field Of View Size Are Important!
If you need to operate under the microscope, you will need a large working distance. SZ series ensures an extended working distance of 110mm. Keep in my mind your application, always: if you are soldering a printed circuit board, it may be more important to have a long working distance; if you are counting items, then a large field of view will be of great help.

Get the most out of our accessories

ST-088 - Polarizing Set
The ST-088 Polarizing Set features a pair of top quality linear polarization filters. The analyzer is mounted on a circular metallic holder equipped with a goniometric scale for determining the extinction angle characteristic of substances and materials.

SZ Series - Modular Chart

SZX-B
WF 10x/22
0.67x...4.5x

SZX-T
WF 10x/22
0.67x...4.5x

SZX-BA
WF 10X/23
0.65x...5.5x

SZ-A1
Coarse focus

SZ-A6
Coarse & **Fine focus**

ST-150
Flat Industrial Stand with pillar

SZ-ST1
Simple Stand

SZ-ST2
Stand with Incident (X-LED³) and Transmitted (12-Led) Illuminators

SZ-ST3
Stand with Incident (X-LED³) and Transmitted (**60-Led**) Illuminators

SZ-ST7
Stand with **Double Incident** (X-LED³) and Transmitted (12-Led) Illuminators

SZ-ST8
Stand with **Double Incident** (X-LED³) and Transmitted (**60-Led**) Illuminators

SZ-OBL
Base with **oblique illumination** (X-LED³)

SZ Series - Modular Chart

SZX-TA
WF 10X23
0.65x - 5.5x

SZO-B
WF 10X/23
0.67x...4.5x **Click-stops**

SZO-T
WF 10X/23
0.67x...4.5x **Click-stops**

ST-152
Flat Industrial Stand
with fixed arm

SZ-STLX
Advanced Precision Overhanging Stand
with Coarse Focus Mechanism

SZ-STL5
Flexible arm stand, 360°rotating

SZ-STL1
Overhanging Stand

SZ-STL2
Advanced Overhanging Stand

SZ-STL5LED
Flexible arm stand, 360°rotating
with 2x incident (X-LED^3) illuminators

SZ Series - Heads

SZX-B / SZX-T

SZX Heads - Excellent Price/Performance Ratio For Any Laboratory
» Ideal for universities, experts & common routine lab requirements
» 3D Greenough view for high resoluted images & large field depth
» 22 mm field number and large working distance (up 110 mm)
» 6.72:1 zoom ratio - zoom magnification from 6.7x to 45x
» Simultaneous eyepiece & camera observation (on SZX-T)
» Cost-effective solution for diversified applications

Head:
SZX-B: Binocular, 360° rotating on all stands and 45° inclined.
SZX-T: Trinocular (split ratio: 50/50), 360° rotating on all stands and 45° inclined.

Interpupillary distance: Adjustable between 51 and 75 mm.

Dioptric adjustment: On both eyepieces.

Eyepieces: WF10x/22 mm, high eyepoint, secured by screw and with integrated rubber cups.

Objective: Parfocal achromatic zoom 0.67x...4.5x (zoom factor 6.72:1)

Working distance: 100 mm.

SZX-BA / SZX-TA

SZX-A Heads - Advanced Analysis With High Power Magnification
» Purposely designed for particularly performing zoom conditions
» 3D Greenough view for high resoluted images & large field depth
» 23 mm field number and large working distance (up 110 mm)
» 8.46:1 zoom ratio - zoom magnification from 6.5x to 55x
» Simultaneous eyepiece & camera observation (on SZX-TA)
» High magnification change from overview to tiny details

Head:
SZX-BA: Binocular, 360° rotating on all stands and 45° inclined.
SZX-TA: Trinocular (split ratio: 50/50), 360° rotating on all stands and 45° inclined.

Interpupillary distance: Adjustable between 51 and 75 mm.

Dioptric adjustment: On both eyepieces.

Eyepieces: WF10x/23 mm, high eyepoint, secured by screw and with integrated rubber cups.

Objective: Parfocal achromatic zoom 0.65x...5.5x (zoom factor 8.46:1).

Working distance: 102 mm.

SZ Series - Heads

SZO-B / SZO-T

SZO Heads - Addressed For Extreme Reliability & Repeatability

» Ensuring the sharpest vision, high productivity, repetitive analysis
» 3D Greenough view for high resoluted images & large field depth
» 23 mm field number and large working distance (up 110 mm)
» 6.72:1 zoom ratio - zoom magnification from 6.7x to 45x
» Simultaneous eyepiece & camera observation (on SZO-T)
» Multi-position click-stop - no need to move eyes from eyepieces

Head:
SZO-B: Binocular, 360° rotating on all stands and 45° inclined.
SZO-T: Trinocular (split ratio: 70/30), 360° rotating on all stands and 45° inclined.

Interpupillary distance: Adjustable between 51 and 75 mm.

Dioptric adjustment: On both eyepieces.

Eyepieces: WF10x/23 mm, high eyepoint, secured by screw and with retractable rubber cups.

Objective: Parfocal achromatic zoom 0.67x...4.5x (zoom factor 6.72:1) with click-stop.

Working distance: 110 mm.

CLICK-STOP DETENTS

On SZO Heads the zoom objective is equipped with a precise click-stop mechanism which makes easy to quickly find the default zoom positions: 0.67x, 0.80x, 1x, 1.2x, 1.5x, 2x, 2.5x, 3x, 3.5x, 4x, and 4.5x.

SZ Series - Zoom Heads Comparison Chart

Model	Head	Eyepieces	Zoom Objective	Zoom Ratio	Click-Stops Detents	Working Distance	Photo Tube
SZX-B	Binocular 45° inclined	WF 10x/22	0.67x...4.5x	6.72:1	-	100 mm	-
SZX-T	Trinocular 45° inclined	WF 10x/22	0.67x...4.5x	6.72:1	-	100 mm	Fixed 50%-50%
SZX-BA	Binocular 45° inclined	WF 10x/23	0.65x...5.5x	8.46:1	-	102 mm	-
SZX-TA	Trinocular 45° inclined	WF 10x/23	0.65x...5.5x	8.46:1	-	102 mm	Fixed 50%-50%
SZO-B	Binocular 45° inclined	WF 10x/23	0.67x...4.5x	6.72:1	0.67x, 0.80x, 1x, 1.2x, 1.5x, 2x, 2.5x, 3x, 3.5x, 4x, and 4.5x	110 mm	-
SZO-T	Trinocular 45° inclined	WF 10x/23	0.67x...4.5x	6.72:1	0.67x, 0.80x, 1x, 1.2x, 1.5x, 2x, 2.5x, 3x, 3.5x, 4x, and 4.5x	110 mm	Fixed 70%-30%

SZ Series - Pillar Stands

SZ-ST1

Extremely stable, ultra-slim and modern stand to be matched with a focusing system and stereozoom head. The 25 mm height makes this stand very effective in preventing fatigue during operation, increasing the ergonomy and the performance as a result.
In case illumination is needed, choose from the wide choice of external illuminators available.

Width: 210 mm
Length: 270 mm
Thickness: 25 mm
Pillar diameter: 32 mm
Pillar height: 275 mm
Stage: 95 mm dia., black and white disc with sample clips
Incident illumination: None
Transmitted illumination: None

To be used in combination with a focusing mechanism (SZ-A1/A6)

SZ-ST2 / SZ-ST3

Top-class X-LED^T transmitted light, with geometrically arranged LEDs and X-LED^3 incident light
The impressive incident illumination generated by the exclusive X-LED^3 swivelling illuminator (3.6 W) is combined with an extra-large, settable 12-LED X-LED^{T1} disc (2 W, on SZ-ST2) or 60-LED X-LED^{T3} disc (4 W, on SZ-ST3) for transmitted illumination.

Incident illumination: X-LED^3 with white 3.6 W LED and brightness control. Color temperature: 6,300 K.

Transmitted illumination:
SZ-ST2: 12-LED X-LED^{T1} disc with white 2 W LED and brightness control. Color temperature: 6,300 K. Multi-plug 100-240Vac/6Vdc external power supply.
SZ-ST3: 60-LED X-LED^{T3} disc with white 4 W LED and brightness control. Color temperature: 6,300 K. Multi-plug 100-240Vac/12Vdc external power supply.

Base dimensions: 270×210 mm.
Pillar dimensions: Ø32×280 mm.
Weight: 1.90 kg.

To be used in combination with a focusing mechanism (SZ-A1/A6)

SZ-ST7 / SZ-ST8

Top-class X-LED^T transmitted light, with geometrically arranged LEDs and freely orientable, flexible double gooseneck X-LED^3 incident light
The impressive incident illumination generated by the exclusive X-LED^3 lighting system located in two flexible gooseneck arms (3.6 W each, for a total of 7.2 W) is combined with an extra-large, settable 12-LED X-LED^{T1} disc (2 W, on SZ-ST7) or 60-LED X-LED^{T3} disc (4 W, on SZ-ST8) for transmitted illumination.

Incident illumination: Two flexible X-LED^3 gooseneck arms with white 3.6 W LED/each and brightness control. Illuminance: 170,000 lux (at 10 cm distance). Color temperature: 6,300 K.

Transmitted illumination:
SZ-ST7: 12-LED X-LED^{T1} disc with white 2 W LED and brightness control. Illuminance: 4,000 lux. Color temperature: 6,300 K. Multi-plug 100-240Vac/12Vdc external power supply.
SZ-ST8: 60-LED X-LED^{T3} disc with white 4 W LED and brightness control. Illuminance: 8,000 lux. Color temperature: 6,300 K. Multi-plug 100-240Vac/12Vdc external power supply.

Base dimensions: 270×210 mm.
Pillar dimensions: Ø32×280 mm.
Stage: 95 mm dia., translucent and black/white discs with sample clips
Weight: 2.40 kg.

To be used in combination with a focusing mechanism (SZ-A1/A6)

SZ Series - Pillar Stands

SZ-OBL

To be used in combination with a focusing mechanism (SZ-A1/A6)

Extremely stable and modern stand, equipped with rotatable mirror and X-LED³ transmitted light. Ideal for observing low-contrast samples that cannot be stained. The X-LED³ light source with its high efficiency and no indirect heating is ideal for observing "live" specimens. Tiltable mirror with 2 faces, one smooth and one knurled, to get maximum contrast from your samples.

Transmitted illumination:
X-LED³ disc frosted white and brightness control.
Illuminance: 8,000 lux. Color temperature: 6,300 K.
Multi-plug 100-240Vac/6Vdc external power supply.

Base dimensions: 270×210 mm.

Pillar dimensions: Ø32×280 mm.

Weight: 2.4 kg.

SZ Series - X-LED Comparison

SZ-ST2: 12-Led ***X-LED*T1**
Transmitted Illuminator

SZ-ST3: 60-Led ***X-LED*T3**
Transmitted Illuminator

SZ-ST7: 12-Led ***X-LED*T1**
Transmitted Illuminator

SZ-ST8: 60-Led ***X-LED*T3**
Transmitted Illuminator

SZ Series - Pillar Stands Comparison Chart

Model	Base	Pillar	Stage	Incident Illumination	Transmitted Illumination
SZ-ST1	270x210x25h mm	32dia.x275h mm	95 mm dia., black and white disc with sample clips	None	None
SZ-ST2	270x210x30h mm	32dia.x280h mm	95 mm dia., white disc with sample clips	***X-LED*³** (single Led, 3.6 W); brightness control	***X-LED*T1** (12-Led); brightness control
SZ-ST3	270x210x30h mm	32dia.x280h mm	95 mm dia., white disc with sample clips	***X-LED*³** (single Led, 3.6 W); brightness control	***X-LED*T3** (60-Led); brightness control
SZ-ST7	270x210x30h mm	32dia.x280h mm	95 mm dia., white disc with sample clips	Double ***X-LED*³** (total 7.2 W) on flexible goosencks; brightness control	***X-LED*T1** (12-Led); brightness control
SZ-ST8	270x210x30h mm	32dia.x280h mm	95 mm dia., white disc with sample clips	Double ***X-LED*³** (total 7.2 W) on flexible goosencks; brightness control	***X-LED*T3** (60-Led); brightness control
SZ-OBL	270x210x85h mm	32dia.x280h mm	95 mm dia., white disc with sample clips	None	***X-LED*T3** brightness control

SZ Series - Boom Stands

SZ-STLX

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

Base dimensions: :	210×255 mm
Pillar dimensions:	Ø32×430 mm
Horizontal arm:	790 mm
Maximum sample height:	270 mm
Swivelling movement:	360°
Tilting movement:	180°
Weight:	16.3 kg

SZ-STL1

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

Base dimensions:	230×230 mm
Pillar dimensions:	Ø32×435 mm.
Horizontal arm:	415 mm
Maximum sample height:	400 mm
Swivelling movement:	360°
Weight:	14.00 kg

To be used in combination with a focusing mechanism (SZ-A1 or SZ-A6)

SZ-STL2

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

Base dimensions:	260×210 mm
Pillar dimensions:	Ø32×425 mm
Horizontal arm:	515 mm
Maximum sample height:	440 mm
Swivelling movement:	360°
Tilting movement:	180°
Weight:	18.8 kg

To be used in combination with a focusing mechanism (SZ-A1 or SZ-A6)

SZ Series - Boom Stands / Flat Industrial Stands

SZ-STL5

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. Small footprint is ensured when not in use, saving valuable space on the bench.
Table clamp included.

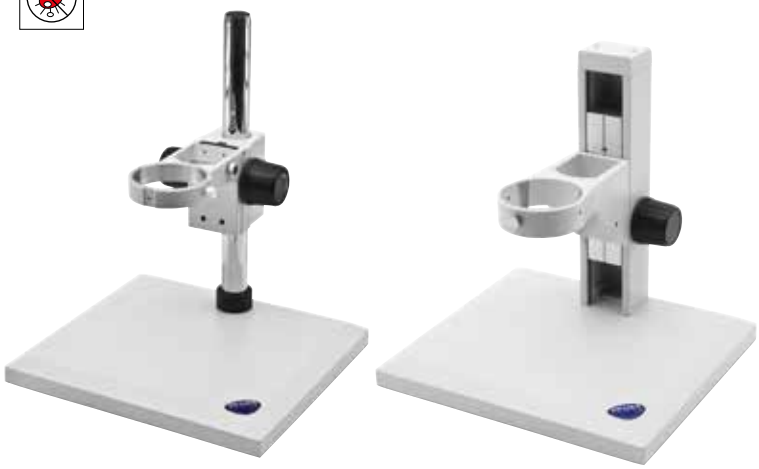
Total height : 330 mm
Total depth: 880 mm
Horizontal arm: 820 mm
Weight: 4.8 kg

SZ-STL5LED

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.
Small footprint is ensured when not in use, saving valuable space on the bench. Multi-plug 100-240Vac/6Vdc external power supply.
Head shown in picture not included

Total height : 330 mm
Total depth: 880 mm
Horizontal arm: 820 mm
Illuminators: 2x X-LED3 on gooseneck, with brightness control unit
Power supply: Multi-plug 100/240Vac, 50-60Hz; output 12Vdc, 1.5A
Weight: 5.7 kg

ST-150 / ST-152



Large, simple plain stand with head holder and focusing mechanism.
ST-150: with pillar;
ST-152: with fixed arm.

Base dimensions: 320x290 mm
Pillar dimensions (ST-150): Ø32×410 mm
Fixed arm height (ST-152): 410 mm

303

SZ Series - Focusing Mechanisms

SZ-A1

Entry-level coarse focusing to raise or lower the head to focus
Coarse focusing system (76 mm head holder, 32 mm pillar) with adjustable tension for standard stereomicroscope requirements.

Type:	Coarse
Coarse total travel:	50 mm
Adjustable tension:	Yes
Head holder internal diameter:	76 mm
Pillar diameter:	32 mm

SZ-A6

Coaxial coarse and fine focusing results in easy, precise conditions
Coaxial coarse and fine focusing system (76 mm head holder, 32 mm pillar) with 2 µm fine resolution and adjustable tension ideal for extremely precise fine adjustments and smooth movements.

Type:	Coaxial coarse and fine
Coarse total travel:	50 mm
Fine total travel (per single rotation):	0.2 mm.
Fine graduations:	100
Fine resolution:	2 µm
Adjustable tension:	Yes
Head holder internal diameter:	76 mm
Pillar diameter:	32 mm

SZ Series - Best Selling Configurations

SZO-B + SZ-A1 + SZ-ST1

SZX-B + SZ-A1 + SZ-ST3

SZX-BA + SZ-A1 + SZ-ST7

SZ Series - Optical Performance

SZX-B and SZX-T Heads

Eyepiece	10x (ST-141)		15x (ST-302)		20x (ST-303)		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 (W.D: 241 mm)	2.01x-13.5x	109.45-16.30	3.02x-20.25x	79.60-11.85	4.02x-27x	59.70-8.89	5.02x-33.75x	44.78-6.67
0.5x (W.D: 160 mm)	3.35x-22.5x	65.67-9.78	5.02x-33.75x	47.76-7.11	6.7x-45x	35.82-5.33	8.37x-56.25x	26.87-4.0
0.75x (W.D: 116 mm)	5.02x-33.75x	43.78-6.52	7.54x-50.62x	31.84-4.74	10.05x-67.5x	23.88-3.56	12.56x-84.37x	17.91-2.67
1x (W.D: 100 mm)	6.7x-45x	32.84-4.89	10.05x-67.5x	23.88-3.56	13.4x-90x	17.91-2.67	16.75x-112.5x	13.43-2.0
1.5x (W.D: 44 mm)	10.05x-67.5x	21.89-3.26	15.07x-101.25	15.92-2.37	20.1x-135x	11.94-1.78	25.12x-168.75x	8.96-1.33
2x (W.D: 26 mm)	13.4x-90.0x	16.42-2.44	20.1x-135x	11.94-1.78	26.8x-180x	8.96-1.33	33.5x-225x	6.72-1.0

SZX-BA and SZX-TA Heads

Eyepiece	10x (ST-306)		15x (ST-302)		20x (ST-303)		25x (ST-144)	
Field number (mm)	23		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 (W.D: 228 mm)	1.95x-15.5x	117.95-13.94	2.93x-23.25x	82.05-9.70	3.9x-31.0x	61.54-7.27	4.88x-38.75x	46.15-5.45
0.5x (W.D: 164 mm)	3.25x-27.5x	70.77-8.36	4.88x-41.25x	49.23-5.82	6.5x-55x	36.92-4.36	8.13x-68.75x	27.69-3.27
0.75x (W.D: 109 mm)	4.87x-41.25x	47.18-5.58	7.31x-61.88x	32.82-3.88	9.74x-82.5x	24.62-2.91	12.18x-103.13x	18.46-2.18
1x (W.D: 102 mm)	6.5x-55x	35.38-4.18	9.75x-82.5x	24.62-2.91	13.0x-110x	18.46-2.18	16.25x-137.5x	13.85-1.64
1.5x (W.D: 46 mm)	9.75x-82.5x	23.59-2.79	14.63x-123.75	16.41-1.94	19.5x-165x	12.31-1.45	24.38x-206.25x	9.23-1.09
2x (W.D: 26 mm)	13.0x-110.0x	17.69-2.09	19.5x-165x	12.31-1.45	26.0x-210x	9.23-1.09	32.5x-262.5x	6.92-0.82

SZO-B and SZO-T Heads

Eyepiece	10x (ST-301)		15x (ST-302)		20x (ST-303)		25x (ST-144)	
Field number (mm)	23		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 (W.D: 287 mm)	2.01x-13.5x	114.43-17.04	3.02x-20.25x	79.60-11.85	4.02x-27x	59.70-8.89	5.02x-33.75x	44.78-6.67
0.5x (W.D: 177 mm)	3.35x-22.5x	68.66-10.22	5.02x-33.75x	47.76-7.11	6.7x-45x	35.82-5.33	8.37x-56.25x	26.87-4.0
0.75x (W.D: 120 mm)	5.02x-33.75x	45.77-6.81	7.54x-50.62x	31.84-4.74	10.05x-67.5x	23.88-3.56	12.56x-84.37x	17.91-2.67
1x (W.D: 110 mm)	6.7x-45x	34.33-5.11	10.05x-67.5x	23.88-3.56	13.4x-90x	17.91-2.67	16.75x-112.5x	13.43-2.0
1.5x (W.D: 47 mm)	10.05x-67.5x	22.89-3.41	15.07x-101.25	15.92-2.37	20.1x-135x	11.94-1.78	25.12x-168.75x	8.96-1.33
2x (W.D: 26 mm)	13.4x-90.0x	17.16-2.56	20.1x-135x	11.94-1.78	26.8x-180x	8.96-1.33	33.5x-225x	6.72-1.0

SZ Series - Best Selling Configurations

SZO-T + SZ-A1 + SZ-STL1

SZO-T + SZ-A1 + SZ-STL2

SZ Series - Accessories

Eyecups & Eyepieces

ST-141	WF10x/22 eyepieces (pair), high eyepoint, focusable, rubber cup (only for SZX-B & SZX-T)
ST-145	WF10x/22 micrometric eyepiece, high eyepoint, focusable, rubber cup (only for SZX-B & SZX-T)
ST-144	WF25x/9 eyepieces (pair), high eyepoint, focusable, with rubber cup
ST-301	WF10x/23 eyepieces (pair), high eyepoint, focusable, with rubber cup (only for SZO-B & SZO-T)
ST-302	WF15x/16 eyepieces (pair), high eyepoint, focusable, with rubber cup
ST-303	WF20x/12 eyepieces (pair), high eyepoint, focusable, with rubber cup
ST-305	WF10x/23 micrometric eyepiece, high eyepoint, focusable, rubber cup (only for SZO-B & SZO-T)
ST-306	WF10x/23 eyepieces (pair), high eyepoint, focusable, rubber cup (only for SZX-BA & SZX-TA)
ST-310	WF10x/23 micrometric eyepiece, high eyepoint, focusable, rubber cup (only for SZX-BA & SZX-TA)

Additional Lenses

ST-102	Additional lens 0.3x
ST-103	Additional lens 0.5x
ST-104	Additional lens 0.75x
ST-105	Additional lens 1.5x
ST-106	Additional lens 2x

Stages

ST-100	Hand moving stage, for insert diameter of 95 mm
ST-110	Moving stage, coaxial knobs, for insert diameter of 95 mm
ST-111	Moving stage, micrometric screws, fort insert diameter of 95 mm
ST-666	Applicable heating stage, for instert diameter of 95 mm, multiplug

Condenser & Filters

ST-040	Darkfield condenser, 95mm diameter
ST-088	Polarising set (filters and rotating stage), 95mm diameter

Camera Adapters

M-113.1	Ring adapter, 30mm (for monocular and binocular microscopes)
M-115	0.35x C-Mount projection lens
M-114	0.5x C-Mount projection lens
M-118	0.75x C-Mount projection lens
M-173	C-Mount projection lens for APS-C/full frame reflex cameras (trino)
M-699	Universal adapter for C-Mount projection lens (trino)
M-620	0.35x focusable C-Mount adapter
M-620.1	0.5x focusable C-Mount adapter
M-620.2	0.65x focusable C-Mount adapter
M-620.3	1x focusable C-Mount adapter

Miscellaneous

15104	Cleaning kit
DC-002	Plastic dust cover, medium, 490(l)x490(h) mm
DC-003	TNT dust cover, medium, 600(l)x550(h) mm
DC-004	TNT dust cover, large, 700(l)x550(h) mm
M-005	Micrometric slide, 26x76mm, with 2 scales (1mm/100 & 10mm/100)
M-069	Solar charger
ST-014	Glass object-plate, 95mm diameter
ST-041	Sample clip
ST-092	Protective glass for stereohead
VP-SZ	IQ/OQ/PQ manual for SZ series
AB-010	Antibacterial surface treatment, only for newly purchased microscope (Only for SZO-B & SZO-T)
AB-020	Antibacterial surface treatment, only for newly purchased microscope

ST-100

ST-110

ST-111

ST-666

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

Headquarters and Manufacturing Facilities

OPTIKA® S.r.l. Via Rigla, 30 - 24010 Ponteranica (BG) - ITALY - Tel.: +39 035.571.392 - info@optikamicroscopes.com

Optika Sales branches

OPTIKA® Spain spain@optikamicroscopes.com
OPTIKA® China china@optikamicroscopes.com
OPTIKA® India india@optikamicroscopes.com
OPTIKA® North America namerica@optikamicroscopes.com
OPTIKA® Central America camerica@optikamicroscopes.com
OPTIKA® Africa africa@optikamicroscopes.com

OPTIKA®
MICROSCOPES
ITALY

SZP Series

Advanced CMO Stereozoom Microscopes

SZP Series

Greenough Vs. CMO Stereo Microscopes

The Greenough design, introduced in the early twentieth century, consists of two identical, symmetrical optical systems each containing a separate eyepiece and objective, arranged in careful alignment with a single housing. The two optical paths are arranged at a precise angle, due to which they converge to the point that determines the working distance and thus the focal length. This design allows high numerical apertures because the objectives are very similar to those used in compound microscopes. The lower section of the microscope contains the objectives, while the upper end of the body tubes projects an image to the eyes.

CMO (Common Main Objective) stereo microscopes have

CMO Stereozoom Microscopes

the ability to collect more light than the Greenough design and feature greater optical aberration correction.
CMO stereo microscopes, unlike Greenough stereo microscopes, are by definition instruments whose optics are infinity corrected. This allows you to easily introduce accessories such as beamsplitters or aperture diaphragms thanks to which you can get a greater depth of field.

Get the most out of our accessories

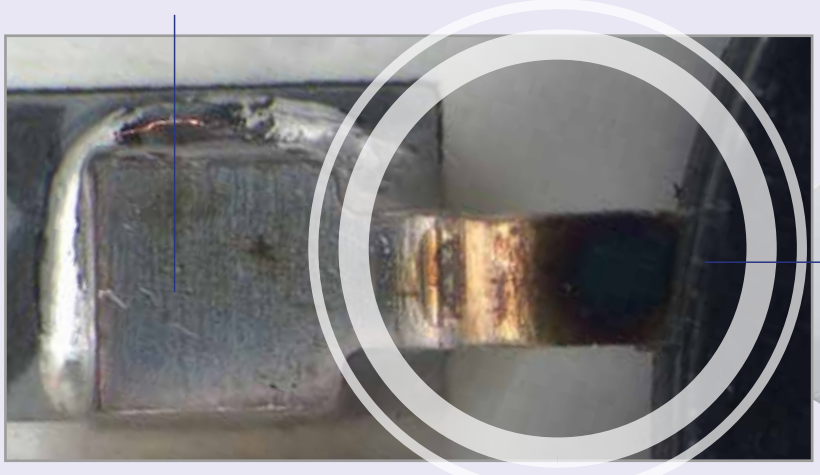
ST-172 - Iris diaphragm module

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



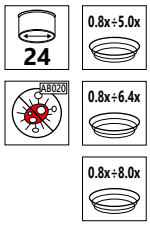
IN-FOCUS AREA

With iris diaphragm close

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

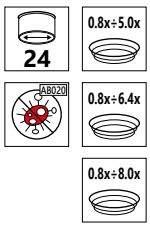
SZP Series - Heads

SZP-6, SZP-8, SZP-10



Part	Description
Head:	Binocular, 360° rotating on all stands and 30° inclined.
Interpup. distance:	Adjustable between 52 and 75 mm.
Dioptric adjustment:	On both eyepieces.
Eyepieces:	WF10x/24 mm, high eye-point.
SZP-6 zoom body:	Parfocal achromatic zoom 0.8x...5.0x (zoom factor 6.25:1).
SZP-8 zoom body:	Parfocal achromatic zoom 0.8x...6.4x (zoom factor 8:1).
SZP-10 zoom body:	Parfocal achromatic zoom 0.8x...8.0x (zoom factor 10:1).
Zoom positioning:	By click-stop mechanism
Objective lens:	Plan Achromatic 1x.
Working distance:	80 mm.
Optical system:	Galilean (Parallel, infinity corrected).

SZP-6e, SZP-8e, SZP-10e



Part	Description
Head:	Ergonomical binocular, 360° rotating on all stands and freely inclinable from 0° to 35°.
Interpup. distance:	Adjustable between 55 and 80 mm.
Dioptric adjustment:	On both eyepieces.
Eyepieces:	WF10x/24 mm, high eye-point.
SZP-6e zoom body:	Parfocal achromatic zoom 0.8x...5.0x (zoom factor 6.25:1).
SZP-8e zoom body:	Parfocal achromatic zoom 0.8x...6.4x (zoom factor 8:1).
SZP-10e zoom body:	Parfocal achromatic zoom 0.8x...8.0x (zoom factor 10:1).
Zoom positioning:	By click-stop mechanism
Objective lens:	Plan Achromatic 1x.
Working distance:	80 mm.
Optical system:	Galilean (Parallel, infinity corrected).

SZP-FL - Epi-Fluorescence Attachment

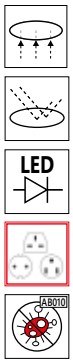
Attachment for fluorescence applications for SZP stereomicroscopes only.
Used in many applications like biology, botany, electronics, materials, forensics. Equipped with HBO 100W mercury lamp illuminator.
To be combined with any SZP model.

Name	Excitation filter (nm)	Dichroic mirror cut-off (nm)	Emission filter (nm)
B Blue	460 - 500	505	510LP
G Green	510 - 550	570	575LP

SZP-FL	**HBO fluorescence attachment for SZP heads**
Description:	SZP fluorescence attachment for biology, industrial inspection, forensics, etc. Essential tool for security printing and mineral research.
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 Attachment:	Trinocular output Photo/Video port.

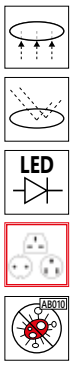
SZP Series - Stands

ST-155



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: 330x290 mm. Height: 40 mm. Fixed arm height: 340 mm.
Head not included.

ST-156



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: 330x290 mm. Height: 40 mm.
Fixed arm height: 340 mm. Head not included.

SZP Series - Optical Performance

SZP Heads

Optical performance SZP-6 / SZP-6e

Eyepiece	10x (ST-160)		15x (ST-161)		20x (ST-162)	
Field number (mm)	24		15		10	
Objective	Total magnification	Field of View (mm)	Total magnification	Field of View (mm)	Total magnification	Field of View (mm)
0.3x (W.D: 280 mm)	2.4x-15x	100.00-16.00	3.6x-22.5x	62.50-10.00	4.8x-30x	41.67-6.67
0.5x (W.D: 165 mm)	4x-25x	60.00-9.60	6x-37.5x	37.50-6.00	8x-50x	25.00-4.00
1x (W.D: 80 mm)	8x-50x	30-4.80	12x-75x	18.75-3.00	16x-100x	12.50-2.00
2x (W.D: 32.5 mm)	16x-100x	15-2.40	24x-150x	9.38-1.50	32x-200x	6.25-1.00

Optical performance SZP-8 / SZP-8e

Eyepiece	10x (ST-160)		15x (ST-161)		20x (ST-162)	
Field number (mm)	24		15		10	
Objective	Total magnification	Field of View (mm)	Total magnification	Field of View (mm)	Total magnification	Field of View (mm)
0.3x (W.D: 280 mm)	2.4x-19.2x	100.00-12.50	3.6x-28.8x	62.50-7.81	4.8x-38.4x	41.67-5.21
0.5x (W.D: 165 mm)	4x-32x	60.00-7.50	6x-48x	37.50-4.69	8x-64x	25.00-3.13
1x (W.D: 80 mm)	8x-64x	30.00-3.75	12x-96x	18.75-2.34	16x-128x	12.50-1.56
2x (W.D: 32.5 mm)	16x-128x	15.00-1.88	24x-192x	9.38-1.17	32x-256x	6.25-0.78

Optical performance SZP-10 / SZP-10e

Eyepiece	10x (ST-160)		15x (ST-161)		20x (ST-162)	
Field number (mm)	24		15		10	
Objective	Total magnification	Field of View (mm)	Total magnification	Field of View (mm)	Total magnification	Field of View (mm)
0.3x (W.D: 280 mm)	2.4x-24x	100.00-10.00	3.6x-36x	62.50-6.25	4.8x-48x	41.67-4.17
0.5x (W.D: 165 mm)	4x-40x	60.00-6.00	6x-60x	37.50-3.75	8x-80x	25.00-2.50
1x (W.D: 80 mm)	8x-80x	30.00-3.00	12x-120x	18.75-1.88	16x-160x	12.50-1.25
2x (W.D: 32.5 mm)	16x-160x	15.00-1.50	24x-240x	9.38-0.94	32x-320x	6.25-0.63

SZP Series - Accessories

Eyecups & Eyepieces

ST-160	WF10x/24 eyepiece, high eyepoint, focusable, with rubber cup
ST-161	WF15x/16 eyepieces (pair), focusable, with rubber cup
ST-162	WF20x/12 eyepieces (pair), focusable, with rubber cup
ST-163	WF10x/24 micrometric eyepiece, high eyepoint, focusable, rubber cup

Additional Lenses

ST-165	0.3x objective (w.d. 280mm)
ST-166	0.5x objective (w.d. 118mm)
ST-167	2x objective (w.d. 32.5mm)

Camera Adapters

M-113.1	Ring adapter, 30mm (for monocular and binocular microscopes)
M-115	0.35x C-Mount projection lens
M-114	0.5x C-Mount projection lens
M-118	0.75x C-Mount projection lens
M-173	C-Mount projection lens for APS-C/full frame reflex cameras (trino)
M-699	Universal adapter for C-Mount projection lens (trino)
M-620	0.35x focusable C-Mount adapter
M-620.1	0.5x focusable C-Mount adapter
M-620.2	0.65x focusable C-Mount adapter
M-620.3	1x focusable C-Mount adapter

Miscellaneous

15104	Cleaning kit
DC-002	Plastic dust cover, medium, 490(l)x490(h) mm
DC-003	TNT dust cover, medium, 600(l)x550(h) mm
DC-004	TNT dust cover, large, 700(l)x550(h) mm
M-005	Micrometric slide, 26x76mm, with 2 scales (1mm/100 & 10mm/100)
M-151	HBO 100W high-pressure mercury bulb for fluorescence
M-151.1	HBO 100W high-pressure mercury bulb for fluorescence (OSRAM)
ST-098	Polarising set (filters and rotating stage)
ST-170	Photo/Video beam splitter - 1 port
ST-171	Photo/Video beam splitter - 2 port
ST-172	Iris diaphgram module
ST-176	Protective glass for stereohead (only works with standard 1x lens)
SZP-FL	HBO fluo attachment, 3-pos. (B & G filter set), multi-plug
VP-SZP	IQ/OQ/PQ manual for SZP series
AB-020	Antibacterial surface treatment, only for newly purchased microscope

15104 - Cleaning kit
It cleans glass quickly and effectively,
without leaving residue or odor.
Ideal for precision lens or prism cleaning.

ST-172

ST-170

ST-171

ST-098

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

Headquarters and Manufacturing Facilities

OPTIKA® S.r.l. Via Rigla, 30 - 24010 Ponteranica (BG) - ITALY - Tel.: +39 035.571.392 - info@optikamicroscopes.com

Optika Sales branches

OPTIKA® Spain spain@optikamicroscopes.com
OPTIKA® China china@optikamicroscopes.com
OPTIKA® India india@optikamicroscopes.com
OPTIKA® North America namerica@optikamicroscopes.com
OPTIKA® Central America camerica@optikamicroscopes.com
OPTIKA® Africa africa@optikamicroscopes.com

OPTIKA®
MICROSCOPES
ITALY

CL Series

Cold Light Illuminators

CL Series - Illuminators

CLD-01

14WLED

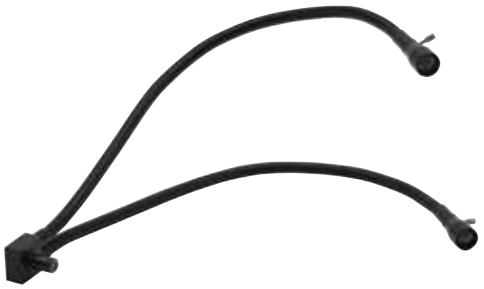
Flexible and professional cold light illuminator with high power, extra-efficiency **14W LED** system, **extremely bright and uniform**.
Optical power: **>1000 lumen**.
Color temperature: pure white 6,300 K.
Brightness control potentiometer, external power supply.

CLD-01 with CL-11.1

CL-17.1: Additional polarizing filters for 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.

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): 100.000 lux.
Optional accessory:
CL-17.1: Polarizing filters (pair) for CL-11.1.

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: 55 mm.
Illuminance (at 10 cm distance): 40,000 lux.

CL Series - Illuminators

CL-32

- Arms with magnetic coupling
- Two selectable light intensities
- Rechargeable batteries
- Focusable light spot

Arm illuminator with magnetic fixing plate, USB powered.
Light sources: LED; With 2W high efficiency LED.
Color temperature: pure white 6,300 K;
Luminous flux: 200 lm;
Illuminance: 20,000 (on 5 cm diameter).

CL-33

Pair of arm illuminators with magnetic fixing plates, metal base, USB.
Light sources: LED; With 2W high efficiency LEDs.
Color temperature: pure white 6,300 K;
Luminous flux: 200 lm (x2);
Illuminance: 20,000 (on 5 cm diameter) (x2).

CL-32/CL-33 quick connection

- place the adhesive disk in the preferred position on the instrument

- magnetically connect the arm and remove it for every need

CL-41

Double-arm X-LED³ illuminator, with brightness control.
Light sources: With 3,6 W high efficiency X-LED³.
Color temperature: pure white 6,300 K;
Luminous flux: 400 lm each arm;
Illuminance: 170,000 lux (at 10 cm distance).
Multi-plug 100-240Vac/12Vdc external power supply.

CL Series - Illuminators

CL-14

2W LED
LED

56-LED ring light illuminator, with brightness control.
Compact, with 360° rotating ring connector.
Illuminance (at 10 cm distance): >8,000 lux.

CL-16.1

2W LED
LED

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.
Color temperature: pure white 6,300 K.
Illuminance: 6,000 lux (at 10 cm distance).

CL-18

2W LED
LED
POL

Professional lighting system including 96 LEDs for enhanced light uniformity and brightness, and **built-in rotating polarizing filter** and analyzer filters for complete polarization, ideal to reduce glares and reflections when viewing metallic parts.
Provided with **on-board intensity level adjustement.**
Diameter of the fixing ring: 60mm.
Color temperature: pure white 6,300 K.
Illuminance: 9,000 lux (at 10 cm distance).

Headquarters and Manufacturing Facilities

OPTIKA® S.r.l. Via Rigla, 30 - 24010 Ponteranica (BG) - ITALY - Tel.: +39 035.571.392 - info@optikamicroscopes.com

Optika Sales branches

OPTIKA® Spain spain@optikamicroscopes.com
OPTIKA® China china@optikamicroscopes.com
OPTIKA® India india@optikamicroscopes.com
OPTIKA® North America namerica@optikamicroscopes.com
OPTIKA® Central America camerica@optikamicroscopes.com
OPTIKA® Africa africa@optikamicroscopes.com

OPTIKA®
MICROSCOPES
ITALY

GEM Series

Stereozoom Microscopes For Gemology

GEM Series

As a leading company in the supply of gemological microscopes, OPTIKA offers a series of microscopes purposely designed for this sector by using both brightfield and darkfield methods OPTIGEM-10 and OPTIGEM-20. This series has been designed and manufactured in order to satisfy the requests of a very demanding industry; brightfield/darkfield, immersion analysis, light color temperature: no detail has been left to chance.

Specifically Designed for Specialists

Gemological stereomicroscopes are meant to help with stone inspection. Jewels and gems have a variety of grades (or quality levels), which ultimately influence their value and cost on the market; therefore it is important to have solutions that are purposely designed for gemology.
These stereomicroscopes are equipped with iris and darkfield condenser on the bottom light source, and with a set of on stage tweezers to hold the stone in place.

Much More Than Gemological Stereomicroscopes

OPTIGEM-10 & OPTIGEM-20 are two-in-one gemology instruments that can be used both in vertical and horizontal position in a very easy way, just by turning one knob (no disassembling and re-assembling operations are required). The horizontal position extends the use of a gemological microscope, giving the possibility to perform immersion analysis by submerging a sample in liquid. If the stone's refractive index is close to the liquid's one, immersion makes the interior more visible by reducing the effects of refraction and surface reflection. This enables you to see a gem's inclusions or color distribution more easily.
Immersion is also necessary to see crystal growth structures, which might help you separate natural from synthetic corundum. Features like curved growth striae in flame-fusion synthetics, or separation planes in assembled stones, are often far easier to see when the stone is immersed.

Vertical position for standard gem analysis with darkfield illumination and polarizing tecnique

Horizontal position for immersion gem analysis

Incredibly Versatile Operations

OPTIGEM Series offers multiple options for illumination and contrast techniques, such as incident, transmitted and oblique brightfield darkfield, polarization and immersion analysis only on Optigem 10 & 20. They come with a special optical condenser configuration to ensure real, perfect darkfield application (see the dedicated chapter for further information).

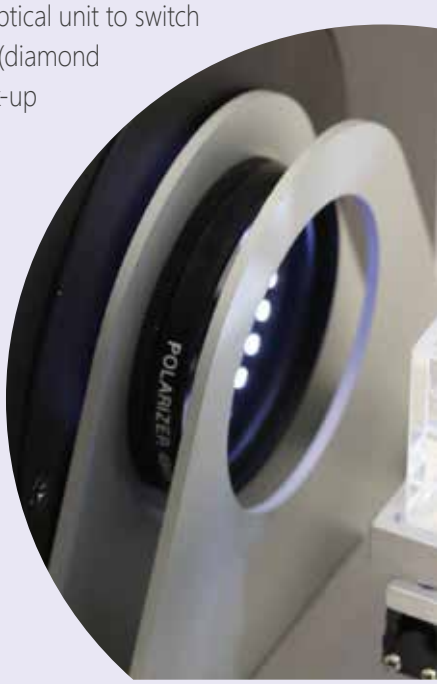
Stereozoom Microscopes For Gemology

Ultrabright LED Condenser for Optimized Illumination
An ultrabright LED-based electronic condenser with intensity control allows to switch from brightfield to darkfield; it also produces perfectly the colour of daylight.
The condenser uses a new optical configuration especially created in order to obtain a perfect darkfield application.

With darkfield observation, the unscattered beams from the image are excluded: as a result, the field around the specimen is generally dark.
An additional flexible arm and velvet-field slider produce extra contrast for crisp and vibrant images. The illumination of OPTIGEM microscopes is greatly performing and this brings this series to be ideal for precious stones and jewels evaluation.

Get the most out of our accessories

A wide range of optional accessories completes these instruments: from gemology clip, iris aperture diaphragm, polarization analysis kit, optical unit to switch the darkfield from a "sharp" (gem exhibition) to a "soft" (diamond analysis) mode, translating cell holder with vacuum pick-up and quartz immesion cells complete and enhance the OPTIGEM-10 & OPTIGEM-20 performances. All the accessories can be stacked, in any order, while using the microscope both horizontally and vertically.



ST-202

ST-202 - Polarizing analysis kit
Polarization technique allows to quickly determine if the stone at hand is isotropic or anisotropic or, at best, to determine the optic character of gemstones (twin planes, strain, pleochroism, etc.). It is also the preferred tool for separating synthetic Quartz from its natural counterparts. In addition, the polarizing microscope may be very useful for distinguishing solid inclusions from negative inclusions as well as for spotting polysynthetic twinning.

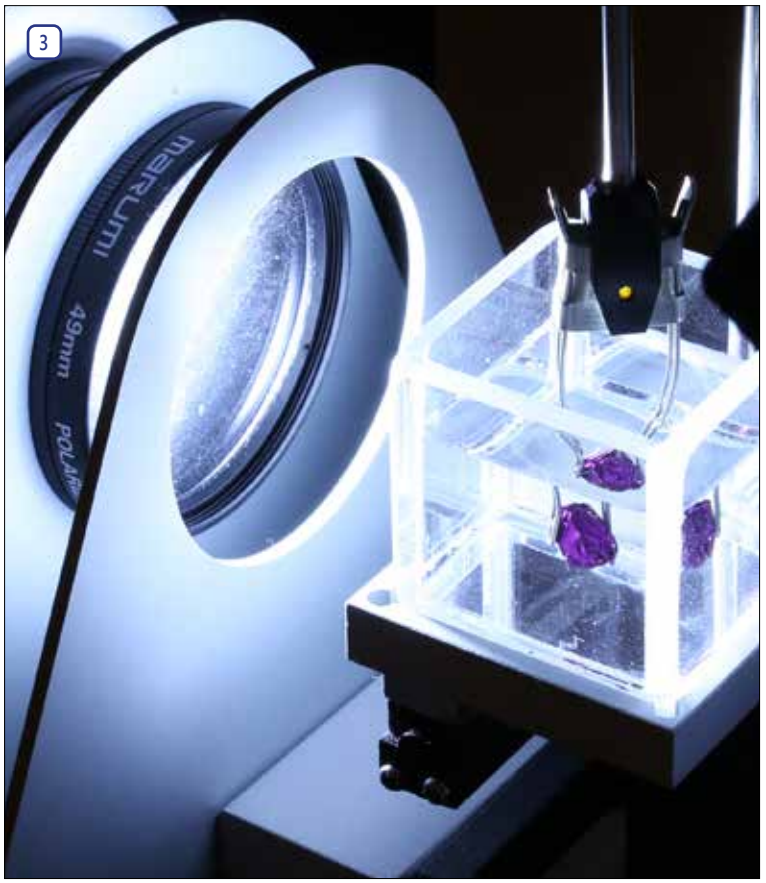
GEM Series

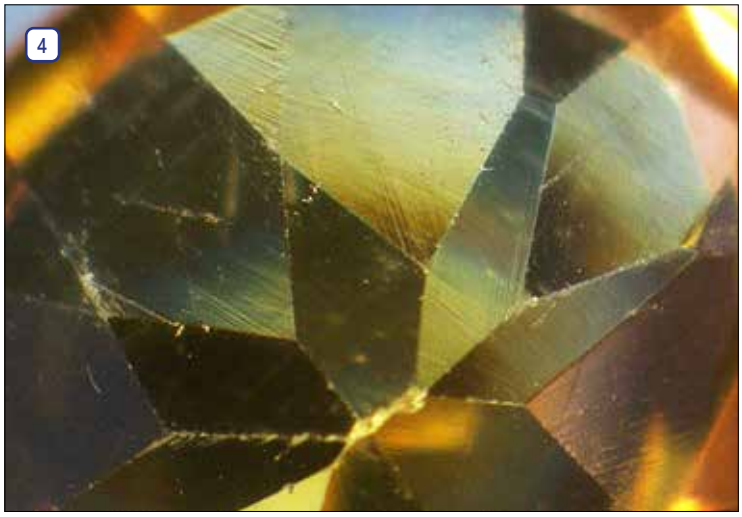
Applications

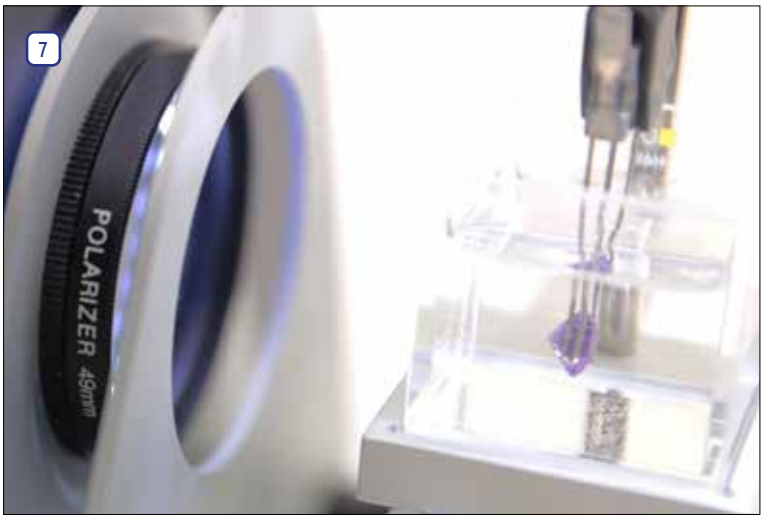
Some application examples demonstrating the performance of OPTIGEM Series, especially designed to observe samples of precious stones and jewels and provided with specific features for gemological needs.

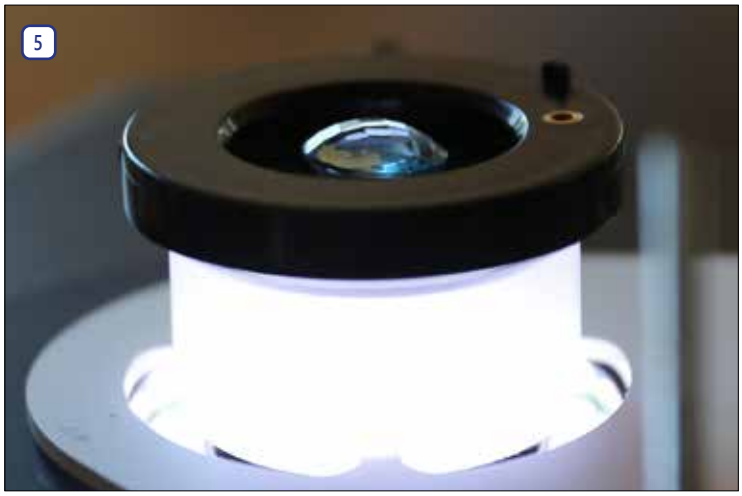
Legend

1. Inspection of stones with OPTIGEM-10.
2. Inspection of stones with pure white darkfield illumination.
3. Immersion cell (ST-203) on a translating support (ST-204).
4. Sample of Citrine.
5. ST-201 accessory creates a soft darkfield illumination ideal for diamond analysis.
6. Optigem can be easily rotated to a horizontal working position.
7. ST-201 accessory for analysis under polarized light.
8. Working with Optigem and its accessories (they can be stacked for increased functionality).




4


7
POLARIZER 49mm

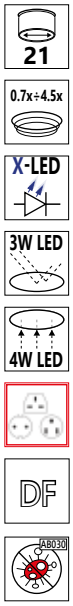

5


6


8

GEM Series - **OPTIGEM10** model

Binocular gemological stereomicroscopes for brightfield and darkfield applications with special side-emitting **LED** illumination ring for true darkfield illumination. Equipped also with **4 incident LED** flexible arm and a diffusive **LED** disc for transmitted illumination.
The instrument can be easily tilted horizontally for immersion analysis.

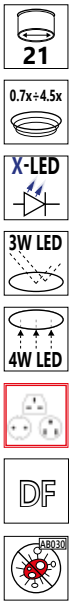


Part	Description
Observation mode:	Brightfield, darkfield.
Heads	Binocular, 45° inclined, 360° rotating.
Interpupillary distance:	Adjustable between 51 and 75 mm
Dioptric adjustment:	On both eyepiece tubes.
Eyepieces:	WF10x/21 mm, high eye-point.
Objective:	Parfocal achromatic zoom 0.7x...4.5x (zoom factor 6.43:1).
Working distance:	100 mm
Specimen stage:	Gemological stage, with clamp for holding gems.
Focusing:	Rack and pinion mechanism controlled by a pair of knobs.
Stand:	Fixed arm stand with tilting system (with position lock control). It can be totally overturned and rotated allowing in this way to obtain a 2-in-one instrument: an instrument for standard observations and one for observation of water-immersed gems.

Part	Description
Darkfield illumination:	Equipped with a state-of-the-art illuminator for darkfield observation. It consist of an innovative side-emmiting LEDs ring with an emission angle of 38°. With brightness control.
Transmitted light llumination:	Equipped with a LED illuminator, located under the stage. With brightness control.
Incident illumination:	Equipped with a flexible gooseneck-arm 4-LED illuminator. With brightness control.
Color temperature:	Pure white 6,300 K

GEM Series - **OPTIGEM20** model

Trinocular gemological stereomicroscopes for brightfield and darkfield applications with special side-emitting **LED** illumination ring for true darkfield illumination. Equipped also with **4 incident LED** flexible arm and a diffusive **LED** disc for transmitted illumination.
The instrument can be easily tilted horizontally for immersion analysis.



Part	Description
Observation mode:	Brightfield, darkfield.
Heads	Trnocular, 45° inclined, 360° rotating.
Interpupillary distance:	Adjustable between 51 and 75 mm
Dioptric adjustment:	On both eyepiece tubes.
Eyepieces:	WF10x/21 mm, high eye-point.
Objective:	Parfocal achromatic zoom 0.7x...4.5x (zoom factor 6.43:1).
Working distance:	100 mm
Specimen stage:	Gemological stage, with clamp for holding gems.
Focusing:	Rack and pinion mechanism controlled by a pair of knobs.
Stand:	Fixed arm stand with tilting system (with position lock control). It can be totally overturned and rotated allowing in this way to obtain a 2-in-one instrument: an instrument for standard observations and one for observation of water-immersed gems.

Part	Description
Darkfield illumination:	Equipped with a state-of-the-art illuminator for darkfield observation. It consist of an innovative side-emmiting LEDs ring with an emission angle of 38°. With brightness control.
Transmitted light llumination:	Equipped with a LED illuminator, located under the stage. With brightness control.
Incident illumination:	Equipped with a flexible gooseneck-arm 4-LED illuminator. With brightness control.
Color temperature:	Pure white 6,300 K

GEM Series - Comparison chart

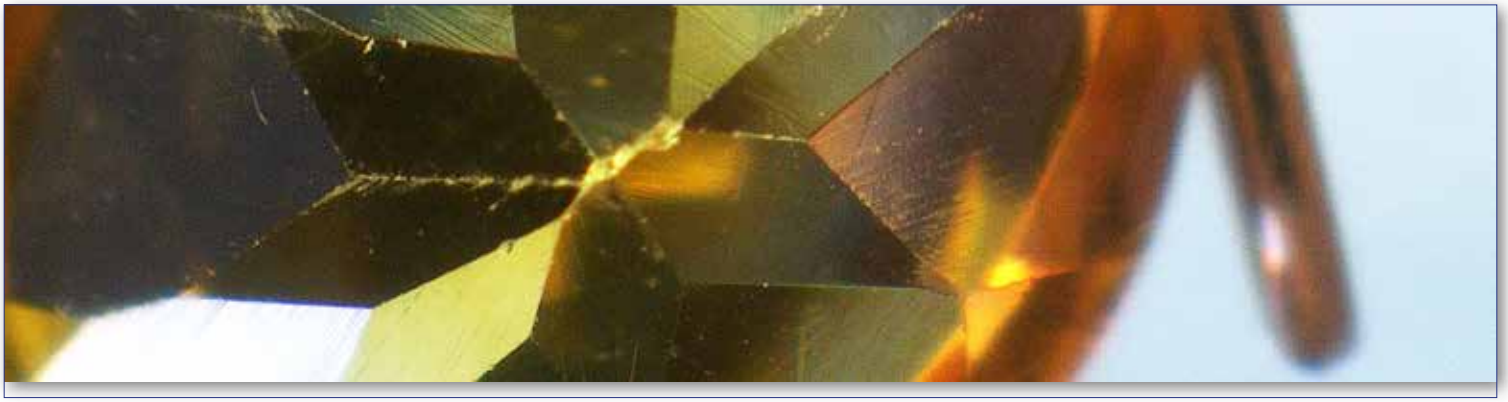
Model	Head	Eyepieces	Objective	Stand	Illumination
OPTIGEM-10	Binocular, 360° rotating, 45° inclined	Wide Field 10x/21mm	0.7 .... 4.5x Zoom	Gemological stand	**Incident illumination:** 4 LED flexible arm with brightness adjustment. **Transmitted illumination:** Diffusive LED disc for observation in brightfield and side-emitting LED ring for observation in darkfield.
OPTIGEM-20	Trinocular, 360° rotating, 45° inclined	Wide Field 10x/21mm	0.7 .... 4.5x Zoom	Gemological stand	**Incident illumination:** 4 LED flexible arm with brightness adjustment. **Transmitted illumination:**Diffusive LED disc for observation in brightfield and side-emitting LED ring for observation in darkfield.

GEM Series - Optical Performance

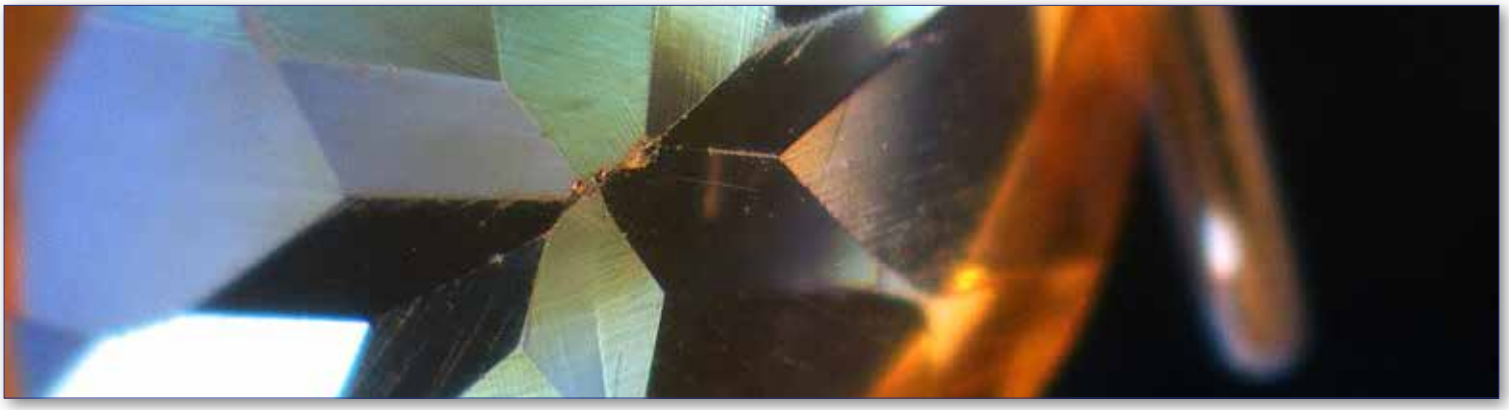
OPTIGEM-10 / OPTIGEM-20 - **Optical performance**

Eyepiece	10x (ST-081)		15x (ST-082)		20x (ST-083)	
Field number (mm)	21		15		10	
Objective	Total magnification	Field of View (mm)	Total magnification	Field of View (mm)	Total magnification	Field of View (mm)
0.5x (W.D. 165 mm)	3.5x-22.5x	60.00-9.23	5.25x-33.75x	42.86-6.67	7x-45x	28.57-4.44
0.75x (W.D. 117 mm)	5.25x-33.75x	40.00-6.22	7.875x-50.625x	28.57-4.44	10.50x-67.5x	19.05-2.96
1x (W.D. 100 mm)	7x-45x	30.00-4.66	10.5x-67.5x	21.43-3.33	14x-90x	14.29-2.22
1.5x (W.D. 47 mm)	10.50x-67.5x	20.00-3.11	15.75x-101.25x	14.29-2.22	21x-135x	9.52-1.48
2x (W.D. 33 mm)	14x-90x	15.00-2.33	21x-135x	10.71-1.67	28x-180x	7.14-1.11

GEM Series - Contrast method comparison



Citrine - OPTIGEM-20 - 0.7x zoom - Brightfield



Citrine - OPTIGEM-20 - 0.7x zoom - Darkfield

GEM Series - Accessories

Eyecups & Eyepieces

ST-081 EW10x/21 eyepieces (pair), high eyepoint, with rubber cup
ST-082 WF15x/15 eyepieces (pair), high eyepoint
ST-083 WF20x/10 eyepieces (pair), high eyepoint
ST-084 WF10x/21 micrometric eyepiece, high eyepoint, with rubber cup

Additional Lenses

ST-086 Additional lens 1.5x (w.d. 45mm)
ST-087 Additional lens 2x (w.d. 33mm)

Condenser & Filters

ST-202 Polarizing analisys kit

Camera Adapters

M-113.1 Ring adapter, 30mm (for monocular and binocular microscopes)
M-115 0.35x C-Mount projection lens
M-114 0.5x C-Mount projection lens
M-118 0.75x C-Mount projection lens
M-173 C-Mount projection lens for APS-C/full frame reflex cameras (trino)
M-699 Universal adapter for C-Mount projection lens (trino)
M-620 0.35x focusable C-Mount adapter
M-620.1 0.5x focusable C-Mount adapter
M-620.2 0.65x focusable C-Mount adapter
M-620.3 1x focusable C-Mount adapter

Miscellaneous

15104 Cleaning kit
DC-002 Plastic dust cover, medium, 490(l)x490(h) mm
M-005 Micrometric slide, 26x76mm, with 2 scales (1mm/100 & 10mm/100)
ST-092 Protective glass for stereohead
ST-201 Iris aperture diaphragm for darkfield
ST-203 Glass immersion cell
ST-204 Translating cell holder
ST-205 Vacuum pick-up (with electric vacuum pump)
ST-207 Iris aperture diaphragm for brightfield
AB-030 Antibacterial surface treatment, only for newly purchased microscope

15104 - Cleaning kit
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.

Headquarters and Manufacturing Facilities

OPTIKA® S.r.l. Via Rigla, 30 - 24010 Ponteranica (BG) - ITALY - Tel.: +39 035.571.392 - info@optikamicroscopes.com

Optika Sales branches

OPTIKA® Spain spain@optikamicroscopes.com
OPTIKA® China china@optikamicroscopes.com
OPTIKA® India india@optikamicroscopes.com
OPTIKA® North America namerica@optikamicroscopes.com
OPTIKA® Central America camerica@optikamicroscopes.com
OPTIKA® Africa africa@optikamicroscopes.com

OPTIKA®
MICROSCOPES
ITALY

MET SERIES

Metallurgical Microscopes

Metallurgical Microscopy

Metallography is the study of the physical structure and components of metals, by using microscopy.
Many different microscopy techniques are used in metallographic analysis.

Prepared specimens should be examined with the unaided eye after etching to detect any visible areas that have responded to the etchant differently from the norm as a guide to where microscopical examination should be employed. Light optical microscopy (LOM) examination should always be performed prior to any electron metallographic (EM) technique, as these are more time-consuming to perform and the instruments are much more expensive.

Further, certain features can be best observed with the LOM, e.g., the natural color of a constituent can be seen with the LOM but not with EM systems. Also, image contrast of microstructures at relatively low magnifications, e.g., <500X, is far better with the LOM than with the scanning electron microscope (SEM), while transmission electron microscopes (TEM) generally cannot be utilized at magnifications below about 2000 to 3000X. LOM examination is fast and can cover a large area. Thus, the analysis can determine if the more expensive, more time-consuming examination techniques using the SEM or the TEM are required and where on the specimen the work should be concentrated.

Brightfield and darkfield microscopy
Most LOM observations are conducted using bright-field (BF) illumination, where the image of any flat feature perpendicular to the incident light path is bright, or appears to be white. But, other illumination methods can be used and, in some cases, may provide superior images with greater detail. Dark-field microscopy (DF), is an alternative method of observation that provides high-contrast images and actually greater resolution than bright-field. In dark-field illumination, the light from features perpendicular to the optical axis is blocked and appears dark while the light from features inclined to the surface, which look dark in BF, appear bright, or "self-luminous" in DF. Grain boundaries, for example, are more vivid in DF than BF.

Polarized light microscopy
Polarized light (PL) is very useful when studying the structure of metals with non-cubic crystal structures (mainly metals with hexagonal close-packed (hcp) crystal structures). If the specimen is prepared with minimal damage to the surface, the structure can be seen vividly in cross-polarized light (the optic axis of the polarizer and analyzer are 90 degrees to each other, i.e., crossed). In some cases, an hcp metal can be chemically etched and then examined more effectively with PL. Tint etched surfaces, where a thin film (such as a sulfide, molybdate, chromate or elemental selenium film) is grown epitaxially on the surface to a depth where interference effects are created when examined with BF producing color images, can be improved with PL. If it is difficult to get a good interference film with good coloration, the colors can be improved by examination in PL using a sensitive tint (ST) filter.

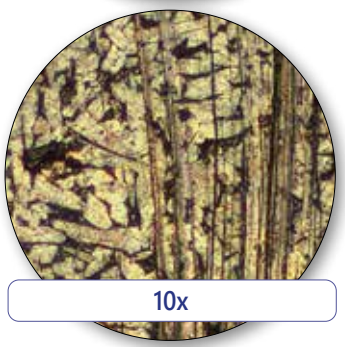
Differential interference contrast microscopy
Another useful imaging mode is differential interference contrast (DIC), which is usually obtained with a system designed by the Polish physicist Georges Nomarski. This system gives the best detail. DIC converts minor height differences on the plane-of-polish, invisible in BF, into visible detail. The detail in some cases can be quite striking and very useful. If an ST filter is used along with a Wollaston prism, color is introduced. The colors are controlled by the adjustment of the Wollaston prism, and have no specific physical meaning, per se. But, visibility may be better.

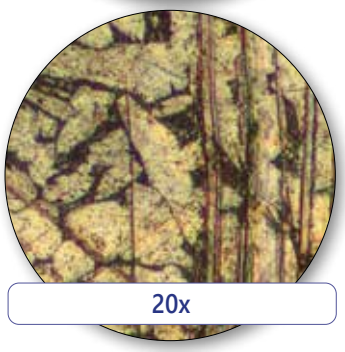
Oblique illumination
DIC has largely replaced the older oblique illumination (OI) technique, which was available on reflected light microscopes prior to about 1975. In OI, the vertical illuminator is offset from perpendicular, producing shading effects that reveal height differences. This procedure reduces resolution and yields uneven illumination across the field of view. Nevertheless, OI was useful when people needed to know if a second phase particle was standing above or was recessed below the plane-of-polish, and is still available on a few microscopes. OI can be created on any microscope by placing a piece of paper under one corner of the mount so that the plane-of-polish is no longer perpendicular to the optical axis.

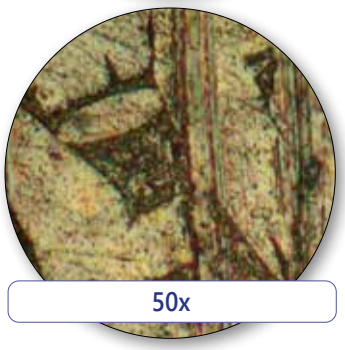
B-383MET - Metallurgical Microscope

Brightfield upright microscope with IOS W-PLAN MET objectives and metallurgical attachment combining the exclusive ***X-LED³*** lighting source both for incident and transmitted illumination. The NCG (no cover glass) objectives are especially designed for microscopy use without a cover slip ideal for metallographic samples and other opaque specimens.


5x


10x


20x

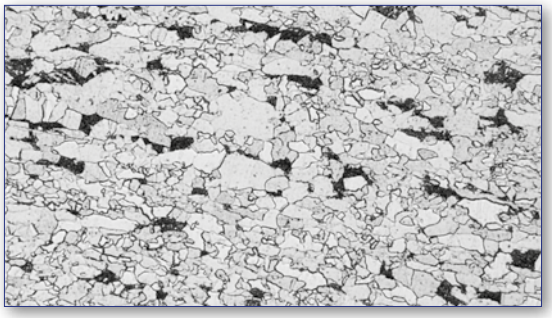

50x

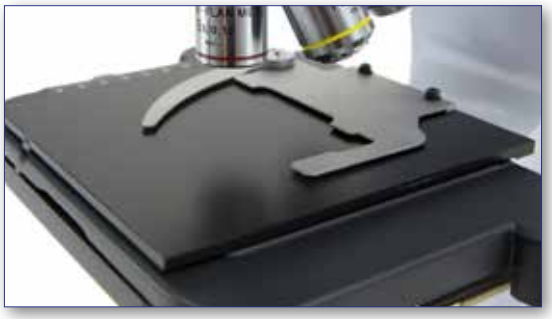
Part	Description
Observation mode:	Brightfield, incident polarized light.
Epi-illumination and polarizing filters:	X-LED³ with white 3.6 W LED (6.300 K) with brightness control. Field and aperture diaphragms, polarizer & analyzer filters.
Head:	Trinocular (fixed 50/50), 30° inclined, 360° rotating.
Interpupillary distance:	Adjustable between 48 and 75 mm.
Dioptric adjustment:	On the left eyepiece tube.
Eyepieces:	WF10x/20 mm, high eye-point and secured by screw.
Nosepiece:	Quintuple revolving nosepiece, rotation on ball bearings.

Part	Description
Objectives (strain-free):	IOS W-PLAN MET 5x/0.12 IOS W-PLAN MET 10x/0.25 IOS W-PLAN MET 20x/0.40 IOS W-PLAN MET 50x/0.75 All with anti-fungus treatment.
Specimen stage:	Double layer rackless mechanical stage, 233x147 mm, 78x54 mm X-Y range. With tempered glass plate.
Focusing:	Coaxial coarse (adjustable tension) and fine focusing mechanism with limit stop to prevent the contact between objective and specimen.
Condenser:	Abbe N.A. 1.25, with objective-coded iris diaphragm, focusable and centerable.
Transmitted illumination (Fixed Koehler type):	X-LED³ with white 3.6 W LED (6.300 K) with brightness control. Multi-plug 100-240Vac/6Vdc external power supply.

B-510MET - Metallurgical Microscope

Advanced routine laboratory microscope with IOS W-PLAN MET objectives and metallurgical attachment with the exclusive ***X-LED³*** lighting source for incident illumination only. The NCG (no cover glass) objectives are especially designed for microscopy use without a cover slip ideal for metallographic samples and other opaque specimens.



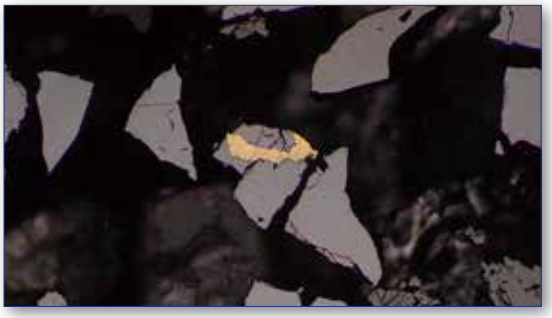


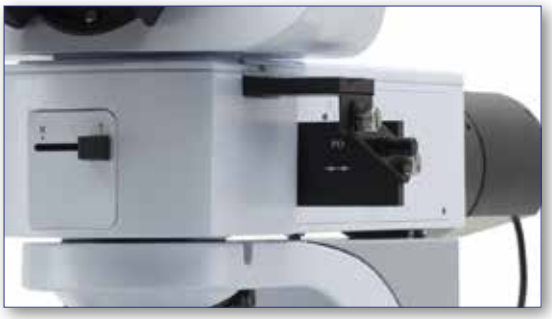
Part	Description
Observation mode:	Brightfield, simple polarized light, oblique illumination on incident light.
Epi-illumination and polarizing filters:	X-LED⁸ with white 8 W LED (6.300 K) with brightness control. With aperture and field diaphragms, and oblique illumination system. With polarizer and analyzer. Multi-plug 100-240Vac/6Vdc external power supply.
Head:	Trinocular (fixed 50/50), 30° inclined, 360° rotating.
Interpupillary distance:	Adjustable between 50 and 75 mm.
Dioptric adjustment:	On the left eyepiece tube.
Eyepieces:	WF10x/22 mm, high eye-point and with rubber cups.
Nosepiece:	Quintuple revolving nosepiece, rotation on ball bearings.

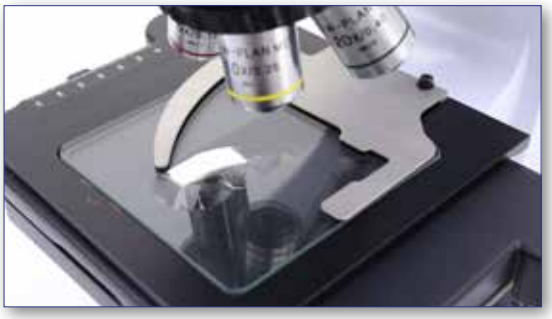
Part	Description
Objectives (strain-free):	IOS W-PLAN MET 5x/0.12 IOS W-PLAN MET 10x/0.25 IOS W-PLAN MET 20x/0.40 IOS W-PLAN MET 50x/0.75 All with anti-fungus treatment.
Specimen stage:	Double layer rackless mechanical stage, 233x147 mm, 78x54 mm X-Y range.
Focusing:	Coaxial coarse (adjustable tension) and fine focusing mechanism with limit stop to prevent the contact between objective and specimen.

B-510METR - Metallurgical Microscope

Advanced routine laboratory microscope with IOS W-PLAN MET objectives and metallurgical attachment with the exclusive ***X-LED³*** lighting source for both transmitted and incident illumination. The NCG (no cover glass) objectives are especially designed for microscopy use without a cover slip ideal for metallographic samples and other opaque specimens.







Part	Description
Observation mode:	Brightfield on transmitted light. Brightfield, simple polarized light, oblique illumination on incident light.
Epi-illumination and polarizing filters:	X-LED⁸ with white 8 W LED (6.300 K) with brightness control. With aperture and field diaphragms, and oblique illumination system. With polarizer and analyzer.
Head:	Trinocular (fixed 50/50), 30° inclined, 360° rotating.
Interpupillary distance:	Adjustable between 50 and 75 mm.
Dioptric adjustment:	On the left eyepiece tube.
Eyepieces:	WF10x/22 mm, high eye-point and with rubber cups.
Nosepiece:	Quintuple revolving nosepiece, rotation on ball bearings.

Part	Description
Objectives (strain-free):	IOS W-PLAN MET 5x/0.12 IOS W-PLAN MET 10x/0.25 IOS W-PLAN MET 20x/0.40 IOS W-PLAN MET 50x/0.75 All with anti-fungus treatment.
Specimen stage:	Double layer rackless mechanical stage, 233x147 mm, 78x54 mm X-Y range. With tempered glass plate.
Focusing:	Coaxial coarse (adjustable tension) and fine focusing mechanism with limit stop to prevent the contact between objective and specimen.
Condenser:	Swing-out N.A. 0.2/0.9, with iris diaphragm, focusable and centerable.
Transmitted illumination (Full Koehler type):	X-LED³ with white 3.6 W LED (6.300 K) with brightness control. Multi-plug 100-240Vac/6Vdc external power supply.

B-1000METBF - Brightfield Metallurgical Microscope

The modular OPTIKA B-1000METBF offers superior quality **brightfield incident light**, helping you working in a comfortable way during extended periods of use and performing reliable, accurate and rapid diagnosis benefiting from modularity, which gives the chance to create customized configurations tailored on customer needs. Versatile, robust, durable and sturdy, B-1000 offers premium quality optics, the state-of-the-art, exclusive ***X-LED*^{8}** (8 W) transmitted illumination (Koehler system). The incident light relies on an incredibly bright 18 W LED illumination, designed by OPTIKA.
B-1000 gives multiple options as manual or motorized configuration.

B-1000METBF - Configuration Chart

Build the microscope that suites your needs by choosing among the components

M-781
PL10x/22 eyepiece, high eyepoint, with micrometric scale (10mm/100um) & rubber cup (retractable)

M-1001
PL10x/22 eyepieces (pair), high eyepoint, with rubber cup (retractable)

M-1003
PL15x/16 eyepieces (pair), high eyepoint

M-1011
Trinocular head, three positions (100/0, 50/50, 0/100)

M-1012
Binocular ERGO head

M-1039
Metallurgical attachment, 18 W LED

M-1021M
Main body with focus system and X-LED^8 illumination, for metallurgical model

M-1021M+M-1156*+M-1149
Main body with motorized focus system and X-LED^8 illumination, for metallurgical model

M-1022M
Main body with focus system, for metallurgical model with incident light only

M-1022M+M-1156*+M-1149
Main body with motorized focus system, for metallurgical model with incident light only

M-1042
Sextuple reversed nosepiece, for RMS objectives with DIC slot

M-1043+M-1156*
Sextuple motorized reversed nosepiece, for RMS objectives with DIC slot

IOS LWD W-PLAN MET

M-1099 2.5x

IOS LWD U-PLAN MET

M-1100 5x
M-1101 10x
M-1102 20x
M-1103 50x
M-1104 100x

IOS LWD U-PLAN F MET

M-1171 5x
M-1172 10x
M-1173 20x
M-1174 50x
M-1175 100x

M-1148
Mechanical stage with glass, for metallurgical model

M-1147+M-1156*
Motorized mechanical stage

M-1154
0.70 N.A. swing-out MET condenser

* Code M-1156 must be added only **once** for any motorized configuration

B-1000METDK - Darkfield Metallurgical Microscope

The modular OPTIKA B-1000METDK offers superior quality **brightfield and darkfield incident light**, helping you working in a comfortable way during extended periods of use and performing reliable, accurate and rapid diagnosis benefiting from modularity, which gives the chance to create customized configurations tailored on customer needs. Versatile, robust, durable and sturdy, B-1000 offers premium quality optics, the state-of-the-art, exclusive ***X-LED⁸*** (8 W) transmitted illumination (Koehler system). The incident light relies on an incredibly bright 18 W LED illumination, designed by OPTIKA.
B-1000 gives multiple options as manual or motorized configuration.

B-1000METDK - Configuration Chart

Build the microscope that suites your needs by choosing among the components

M-781
PL10x/22 eyepiece, high eyepoint, with micrometric scale (10mm/100um) & rubber cup (retractable)

M-1001
PL10x/22 eyepieces (pair), high eyepoint, with rubber cup (retractable)

M-1003
PL15x/16 eyepieces (pair), high eyepoint

M-1011
Trinocular head, three positions (100/0, 50/50, 0/100)

M-1012
Binocular ERGO head

M-1039MD
Metallurgical attachment 18 W LED (Built-in MET nosepiece with 6-positions)

M-1021MD
Main body with focus system and X-LED8 illumination, for brightfield/darkfield metallurgical B-1000

M-1021MD+M-1156*+M-1149
Main body with motorized focus system and X-LED8 illumination, for brightfield/darkfield metallurgical B-1000

M-1022MD
Main body with focus system (incident light only), for brightfield/darkfield metallurgical B-1000

M-1022MD+M-1156*+M-1149
Main body with motorized focus system (incident light only), for brightfield/darkfield metallurgical B-1000

IOS LWD W-PLAN MET

LWD W-PLAN MET ∞ — **M-1099** 2.5x

IOS LWD U-PLAN MET

LWD U-PLAN MET ∞

- **M-1100** 5x
- **M-1101** 10x
- **M-1102** 20x
- **M-1103** 50x
- **M-1104** 100x

IOS LWD U-PLAN F MET

LWD U-PLAN F MET ∞

- **M-1171** 5x
- **M-1172** 10x
- **M-1173** 20x
- **M-1174** 50x
- **M-1175** 100x

IOS LWD U-PLAN MET BD

LWD U-PLAN MET BD ∞

- **M-1094** 5x
- **M-1095** 10x
- **M-1096** 20x
- **M-1097** 50x
- **M-1098** 100x

IOS LWD U-PLAN F MET BD

LWD U-PLAN F MET BD ∞

- **M-1180** 5x
- **M-1181** 10x
- **M-1182** 20x
- **M-1183** 50x
- **M-1184** 100x

M-1148
Mechanical stage with glass, for metallurgical model

M-1147+M-1156*
Motorized mechanical stage

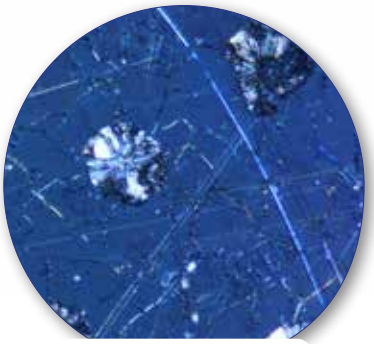
M-1154
0.70 N.A. swing-out MET condenser

* Code M-1156 must be added only **once** for any motorized configuration

IM-300METLD- Metallurgical Microscope

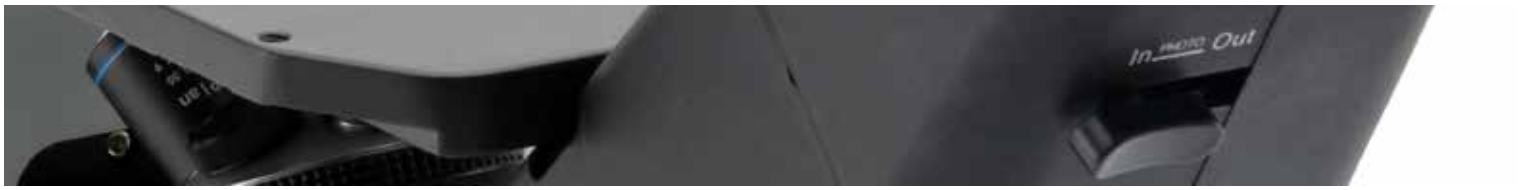
LED routine inverted microscope with IOS LWD U-PLAN MET objectives for material science and metallographic applications, combining a sturdy yet compact structure with dedicated components required in this field, like the NCG (no cover glass) objectives working without cover slide ideal for metallographic samples and other opaque specimens. A particularly simple and ingenious optical design allows stable alignments and smooth and accurate movements.
This model is equipped with an 18W LED lighting system.

CAST IRON
BRIGHTFIELD



CAST IRON
POLARIZED LIGHT

IM-300METLD - Specifications



Part	Description
Observation mode:	Brightfield, simple polarized light.
Epi-illumination and polarizing filters:	LED 18 W with brightness control. With centrable aperture and field diaphragms. With polarizer and 360° analyzer. Supplied with blue (LBD) filter.
Head:	Trinocular (2-position 100/0, 50/50), 45° inclined.
Interpupillary distance:	Adjustable between 50 and 75 mm.
Diopter adjustment:	On the left eyepiece tube.
Eyepieces:	WF10x/22 mm, high eye-point and with rubber cups.
Nosepiece:	Quintuple revolving nosepiece, rotation on ball bearings.

Part	Description
Objectives:	IOS LWD U-PLAN MET 5x/0.15 IOS LWD U-PLAN MET 10x/0.30 IOS LWD U-PLAN MET 20x/0.45 IOS LWD U-PLAN MET 50x/0.55 All with anti-fungus treatment.
Specimen stage:	Fixed stage, 250x160 mm, with round metal stage insert.
Focusing:	Coaxial coarse (adjustable tension) and fine focusing mechanism.

IM-5MET - Metallurgical Microscope

Industrial and materials science inverted microscope especially designed for opaque specimens (including metals microstructure investigation and studies such as grain size, grain boundaries, phases, transformation, inclusions, and non-metals, as well as sample preparation and treatment) in metallography labs. Freely configurable lenses according to customer's preferences , FN 24 high eyepoint, infinity corrected optical system, coaxial focusing, mechanical stage, and epi-illumination attachment powered by halogen 12 V/100 W with brightness control. Sturdy and incredibly reliable, it is equipped with all the main controls in ergonomic position and with long lasting, efficient LED illumination to provide over 20 years of use.

24

IOS ∞

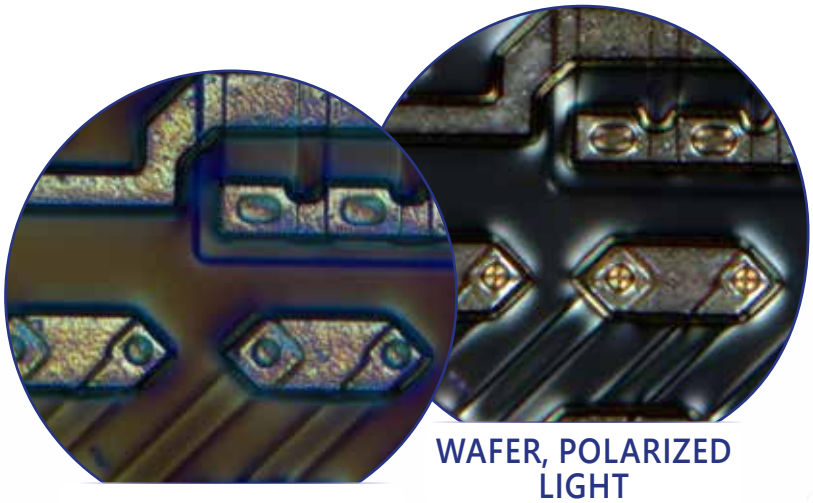
U-PLAN

MET

POL

DF

DIC



WAFER, DIC

WAFER, POLARIZED LIGHT

IM-5MET - Specifications

Part	Description
Head:	Trinocular (split ratio: 100/0, 50/50), 45° inclined.
Interpupillary distance:	Adjustable between 50 and 75 mm.
Dioptric adjustment:	Both eyepieces.
Eyepieces:	WF10x/24 mm, high eyepoint, secured by screw and with retractable rubber cups.
Epi-illumination & filters:	Halogen 12 V/100 W with brightness control. With field and aperture diaphragms, polarizer and analyzer filters.
Nosepiece:	Quintuple ball bearings revolving nosepiece, reversed.
Objectives:	Selectable according to customer's preferences. All with anti-fungus treatment.
Specimen stage:	Mechanical stage, 240x250 mm.
Focusing:	Coaxial coarse and fine focusing mechanism with limit stop to prevent the contact between objective and specimen. Adjustable tension of coarse focusing knob.

IM-5MET is freely configurable in terms of objectives, by choosing among:

Included ■ Optional □

MET Infinity-corrected Plan-Achromatic, Long Working Distance objectives, field flatness up to F.N. 25:		
M-1100	IOS LWD U-PLAN MET objective 5x/0.15	□
M-1101	IOS LWD U-PLAN MET objective 10x/0.30	□
M-1102	IOS LWD U-PLAN MET objective 20x/0.45	□
M-1103	IOS LWD U-PLAN MET objective 50x/0.55	□
M-1104	IOS LWD U-PLAN MET objective 100x/0.80 (dry)	□

MET Infinity-corrected Semi-Apochromatic, Long Working Distance objectives, field flatness up to F.N. 25:		
M-1171	IOS LWD U-PLAN F MET objective 5x/0.15	□
M-1172	IOS LWD U-PLAN F MET objective 10x/0.30	□
M-1173	IOS LWD U-PLAN F MET objective 20x/0.50	□
M-1174	IOS LWD U-PLAN F MET objective 50x/0.80	□
M-1175	IOS LWD U-PLAN F MET objective 100x/0.90 (dry)	□

MET Infinity-corrected Plan-Achromatic, Long Working Distance objectives, for brightfield and darkfield, field flatness up to F.N. 25:		
M-1094	IOS LWD U-PLAN MET BD objective 5x/0.15	□
M-1095	IOS LWD U-PLAN MET BD objective 10x/0.30	□
M-1096	IOS LWD U-PLAN MET BD objective 20x/0.45	□
M-1097	IOS LWD U-PLAN MET BD objective 50x/0.55	□
M-1098	IOS LWD U-PLAN MET BD objective 100x/0.80 (dry)	□

MET Infinity-corrected Semi-Apochromatic, Long Working Distance objectives, for brightfield and darkfield, field flatness up to F.N. 25:		
M-1180	IOS LWD U-PLAN F MET BD objective 5x/0.15	□
M-1181	IOS LWD U-PLAN F MET BD objective 10x/0.30	□
M-1182	IOS LWD U-PLAN F MET BD objective 20x/0.50	□
M-1183	IOS LWD U-PLAN F MET BD objective 50x/0.80	□
M-1184	IOS LWD U-PLAN F MET BD objective 100x/0.90 (dry)	□

Headquarters and Manufacturing Facilities

OPTIKA® S.r.l. Via Rigla, 30 - 24010 Ponteranica (BG) - ITALY - Tel.: +39 035.571.392 - info@optikamicroscopes.com

Optika Sales branches

OPTIKA® Spain spain@optikamicroscopes.com
OPTIKA® China china@optikamicroscopes.com
OPTIKA® India india@optikamicroscopes.com
OPTIKA® North America namerica@optikamicroscopes.com
OPTIKA® Central America camerica@optikamicroscopes.com
OPTIKA® Africa africa@optikamicroscopes.com

OPTIKA®
MICROSCOPES
ITALY

IS SERIES

Inspection Video Microscopes

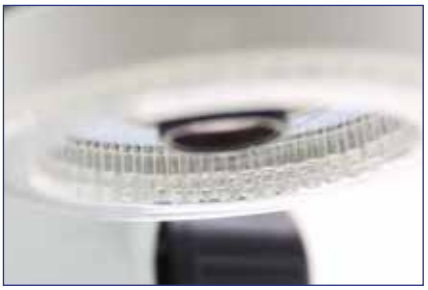
IS-01 - Overview

OPTIKA **IS-01** is a compact, all-in-one video microscope with **integrated HDMI camera and built-in software**.
Ideal for achieving up to 50X magnifications and performing measurements.
It's recommended when repeatability is required thanks to the click-stop mechanism at different magnifications steps.
With **60 frames** per second at full resolution and **1080 HD** image quality, you can see, on a plugged HDMI monitor, the same as what you see through the microscope eyepieces.

Integrated HDMI camera and built-in software

Click stop mechanism Zoom 0.7x to 5x

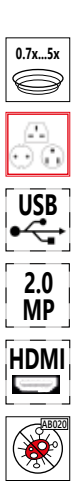
LED Ring illumination integrated system



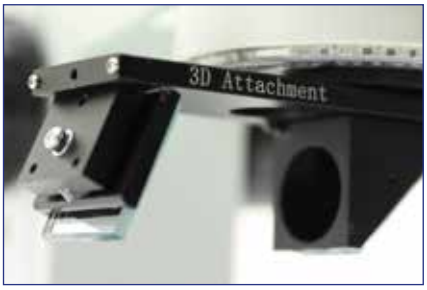
Wireless mouse included

IS-01SMD - Overview

OPTIKA **IS-01SMD** is a compact, all-in-one video microscope with **integrated HDMI camera and built-in software**.
Ideal for achieving high magnifications and performing measurements.
It's recommended when repeatability is required thanks to the click-stop mechanismat different magnifications steps.
With **60 frames** per second at full resolution and **1080 HD** image quality, you can see, on a plugged HDMI monitor, the same as what you see through the microscope eyepieces. **The 3D rotational angle view attachment and the 7x to 50x zoom of IS-01SMD provide an unparalleled real-time 3D view ideal for PCB and Medical Devices inspection that is simple to use and remarkable in image quality.**
Long working distance allows soldering rework and assembly by watching LCD screen. The Built-in camera is fitten with USB2.0 slots for storing image and video without any computer using a USB flash disk. Thanks to the measurement software, it is possible to perform dimensional measurements on screen.

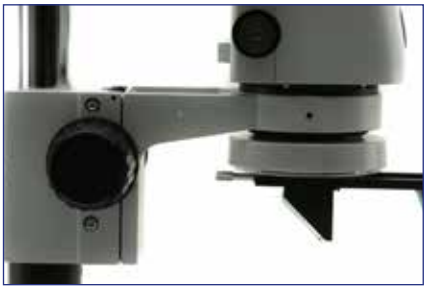


Integrated HDMI camera and built-in software



Click stop mechanism
Zoom
0.7x to 5x

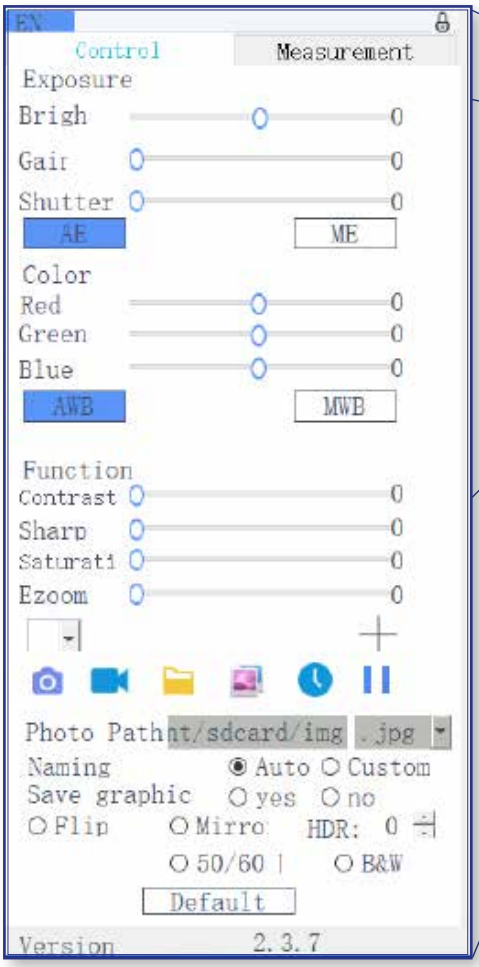
LED Ring illumination integrated system



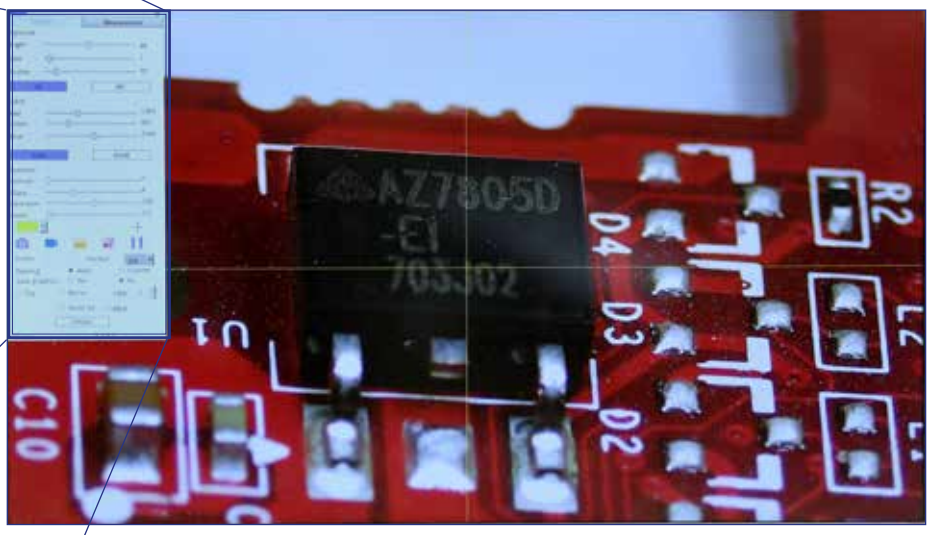
3D Attachment with rotational angle view

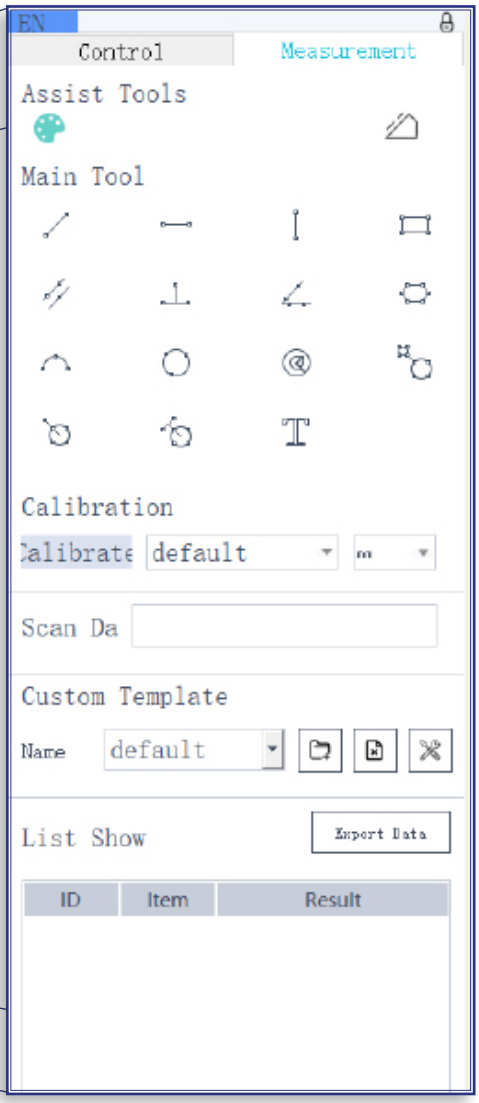
Wireless mouse included

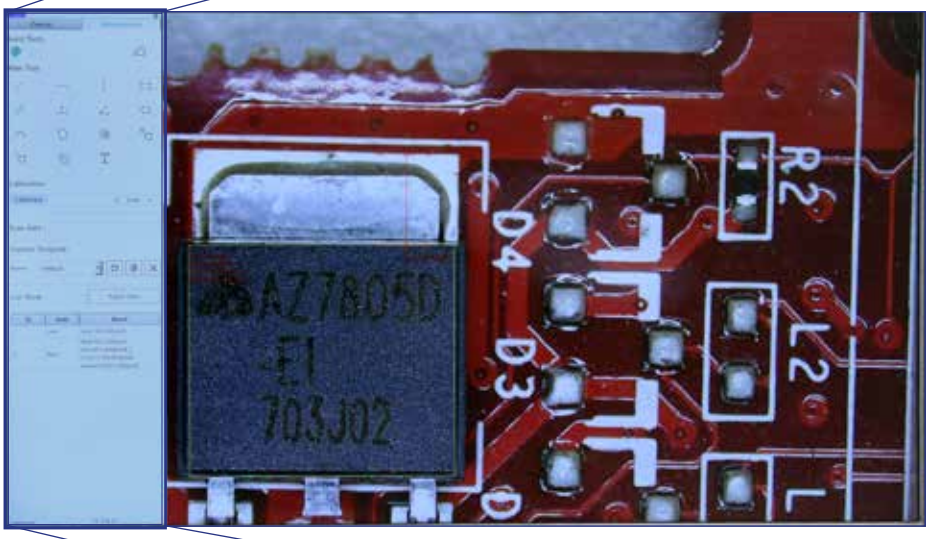
IS-01/IS-01SMD - Built-it Software Overview



Main camera control panel





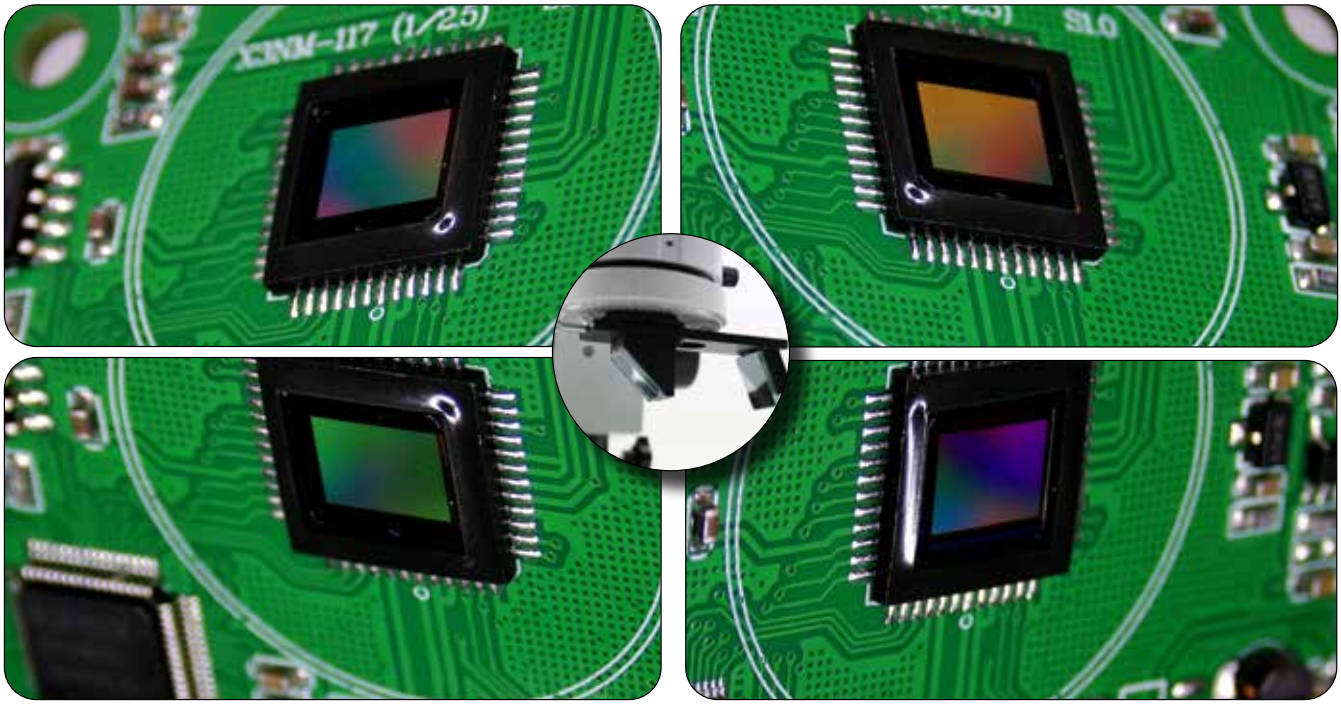


Main measurement control panel

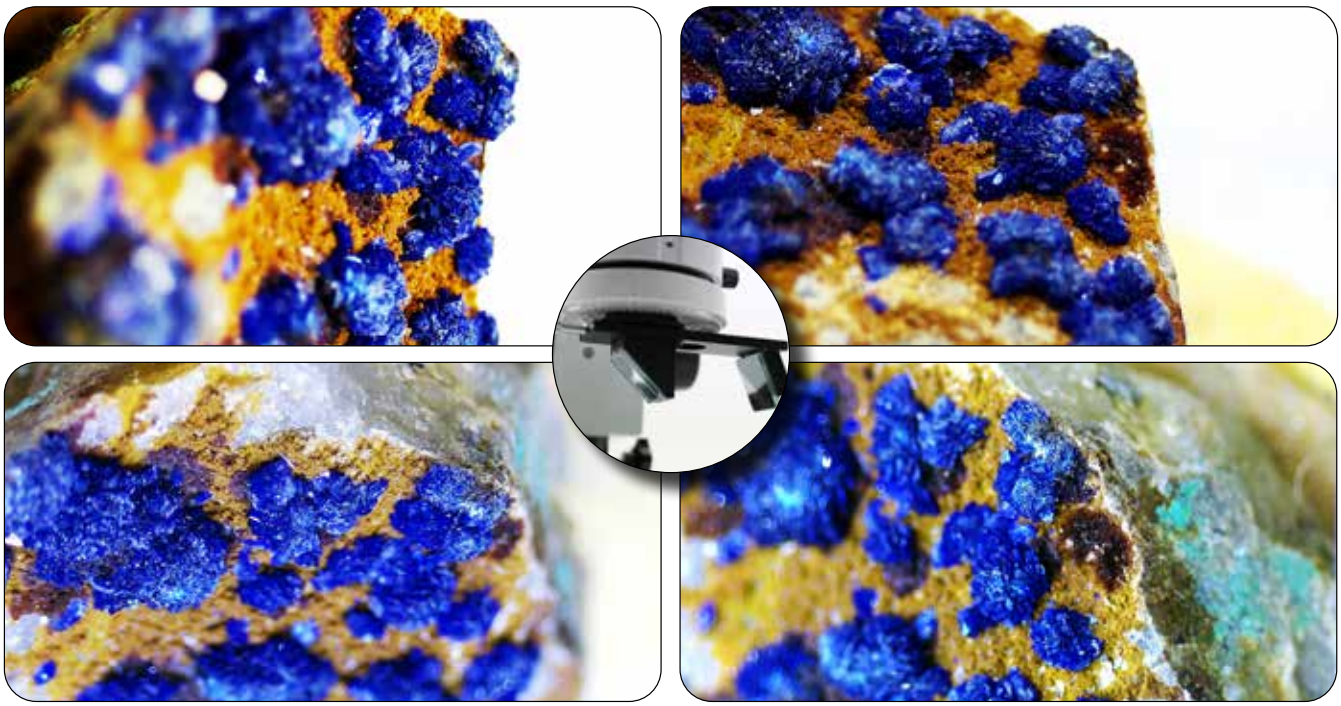
IS-01SMD - Straight/3D view quick switching

Straight view

3D view

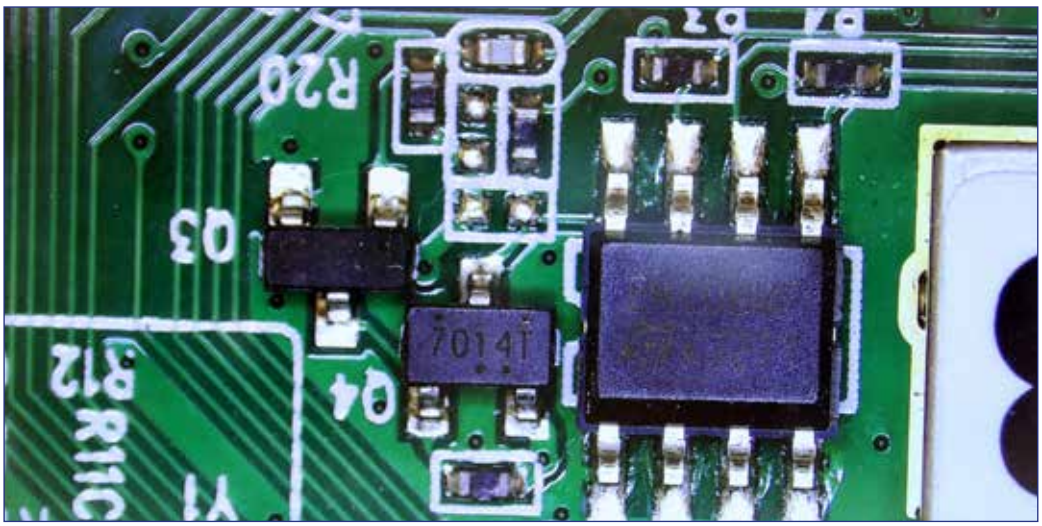


Captures of samples obtained by rotating the 3D attachment of the IS-01SMD model (optional on the IS-01 model)

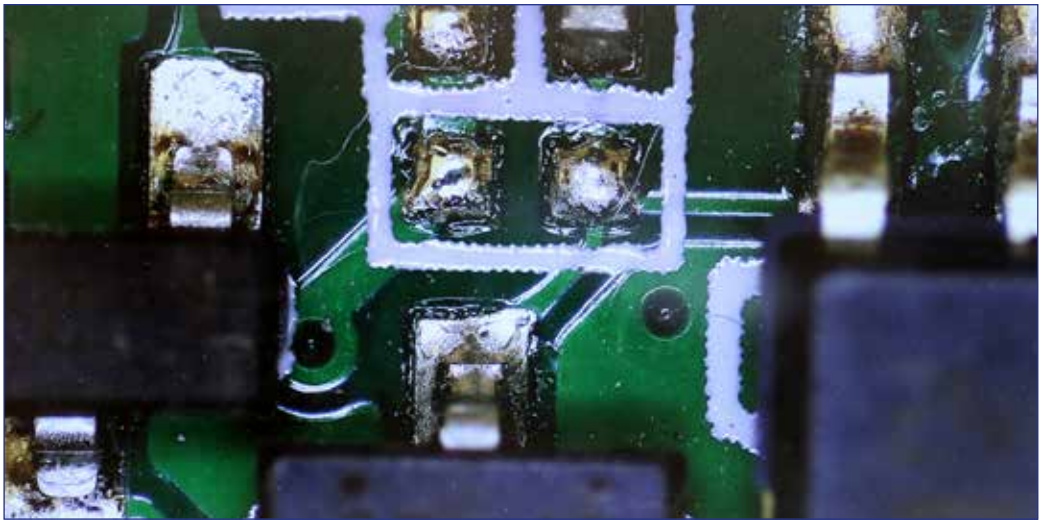


IS-01 - Straight View Zoom Factor

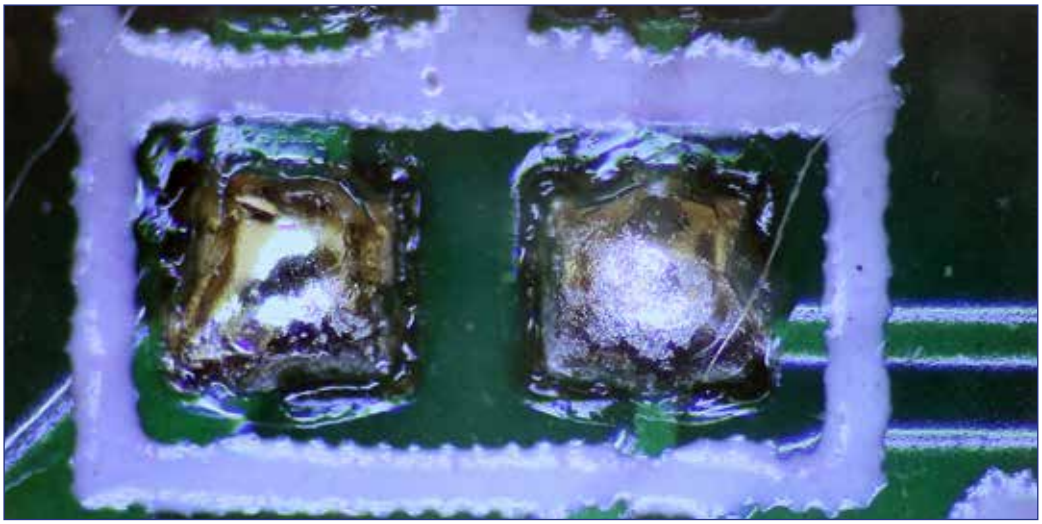
Straight View 0.7X



Straight View 2X



Straight View 5X



IS-01/IS-01SMD - Technical Specifications

IS-01/IS-01SMD Main Body

Observation Method	
Brightfield	Yes
Head	
Construction material	Plastic mold / Aluminum gears
Objective	
Optical system	160 mm
Anti-fungus treatment	Yes
Objective Type	Achromatic
Zoom type	Parfocal achromatic
Working distance (mm)	110
Standard magnifications	0.7x-5x
Zoom ratio	7.14
Zoom click stops	At 0.7x, 1x, 1.5x, 2x, 2.5x, 3x, 4x, 5x
Focusing System	
Type	Coarse
Coarse total travel (mm)	50
Adjustable tension	Yes
Head holder internal diameter (mm)	76
Head	
Type	Pillar
Pillar diameter (mm)	32

Incident Illumination	
Type	LED
Light source power (W)	1
Illuminance (lux)	60000
Brightness control	Manual
Lifetime (hours)	> 65000
Temperature (K)	6300
Max. required power (W)	3
Power Supply for Illumination	
Type	External
Microscope connector	Jack, 2.1 mm
Power plug type	Multi-plug (EU, UK, US)
Input voltage	110/240 Vac, 50/60 Hz
Output voltage	12 Vdc
Additional Information	
Maximum sample height (mm):	150
Product Dimensions	
Total height (mm)	510
Total width (mm)	320
Total depth (mm)	260
Weight	4.3 kg

IS-01/IS-01SMD Digital Head

Resolution (MP)	2
Sensor type	CMOS
Sensor size	1/2.8"
Sensor aspect ratio	16/9
Full image size	1920x1080
Pixel size (µm)	2.9x2.9
Frame rate	60 fps (1920x1080)

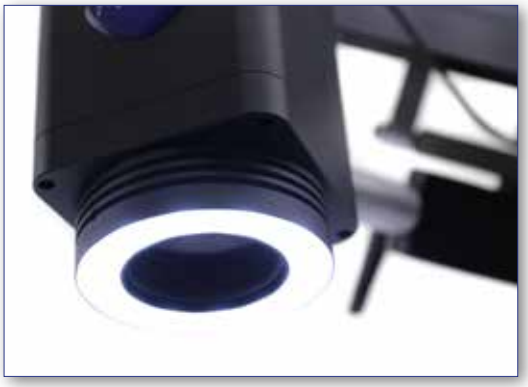
S/N ratio (dB)	>50
Dynamic range (dB)	>50
Sensitivity (V/lux*s @550nm)	0.4
Exposure time (s)	0.02 - 1/10000
USB type	2.0
Software	built-in

IS-01SMD 3D Attachment

Swing-out	Yes
360° Rotatable	Yes

IS-4K2 - Overview

Advanced inspection system suitable for intensive use, ideal for video inspection in quality control of electronics, mechanics, and other industrial applications.
IS-4K2 includes the **real-time full HD auto-focus camera** with **relevant zooming capalibilities** (optical zoom is 1x...18x).
Crystal clear 4K live view is shown trough a large HD monitor, with incredibly fast connection (30 fps). Its angle of view is **fully adjustable** and it enables **instant focus** in less than 1 sec. with no need to constantly adjust lens position. In addition, the working distance goes to infinity, making it the **recommended solution to inspect multi-layered objects**.
All functions are controlled directly from the screen via a wireless mouse. Images and videos can be saved on the SD card and easily transferred on any device. The system is completed by the SZ-STLX **boom stand** with a **special joint to enable any rotation** (transversal and longitudinal): the longitudinal movement is through the sliding of the horizontal rail (lockable); whilst also the overall height is both adjustable and lockable.

IS-4K2 - Technical Specifications

HDMI MONITOR	
Type	LCD screen 360° rotating, freely inclinable for ergonomic vision
Size	15.6"
Power supply	5V / 4A
CAMERA	
HDMI camera resolution (MP)	8
Camera resolution (n° of pixels: W x H)	3840x2160
HDMI signal output	Yes
WiFi signal output	Yes
Sensor size	1/2.8"
Sensor technology	CMOS
Sensor type	SONY STARVIS
Optical zoom	1x-18x
Rolling shutter	Yes
Autofocus	Yes
Image format	16/9
Pixel size (mm)	1.45x1.45
Frame rate full resolution (fps)	30@3840x2160
Camera power	12V / 3A
Dimensions (mm)	80 x 80 x 116
Weight (Kg)	0,68

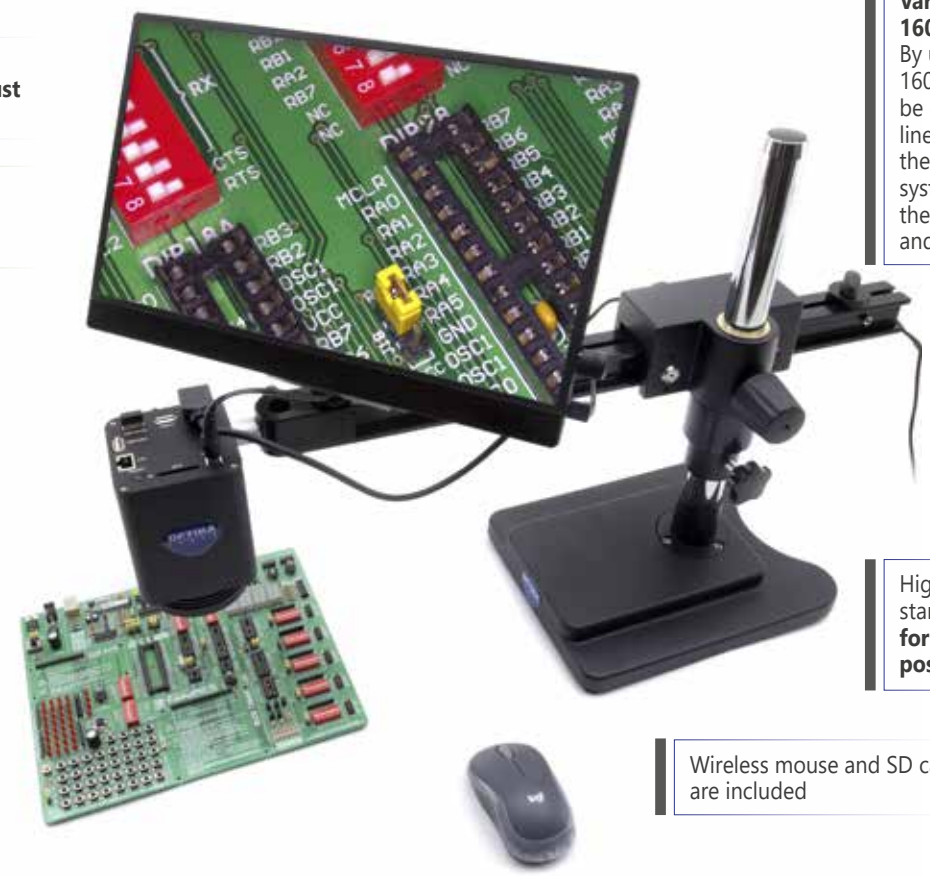
STAND	
Type	Coarse simple overhanging
Coarse total travel (mm)	50
Adjustable tension	Yes
Head holder internal diameter (mm)	76
Pillar diameter (mm)	32
Maximum sample height (mm)	270 (from bench)
Total height (mm)	430
Base height (mm)	58
Base width (mm)	210
Base depth (mm)	255
Horizontal arm (mm)	790
Product weight (kg)	16.3
ACCESSORIES	
Accessories Included:	LED ringlight, HDMI cable (0,3m), Wireless Mouse, SD card and WiFi Adapter.

On-board controls and cross grid

Variable working distance from 160 to 250mm.
By using a standard W.D. of 160-255 mm the camera can be calibrated and used for linear measurement regardless the zoom factor used. The system automatically "knows" the current zoom factor and performs the correct

No need to constantly re-adjust the lens focus

1/2.8" CMOS 8MP camera with **powerful 1x-18x**



Sliding horizontal rail for longitudinal positioning; adjustable longitudinal limit; adjustable and lockable height

Sensor's main features are the **high sensitivity** and **incredible color fidelity**: save money (no need of external illuminators or ring lights)

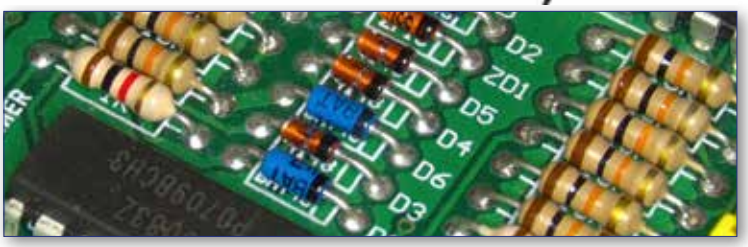
High-performance boom stand with **special joint for customized camera positioning**

Wireless mouse and SD card are included

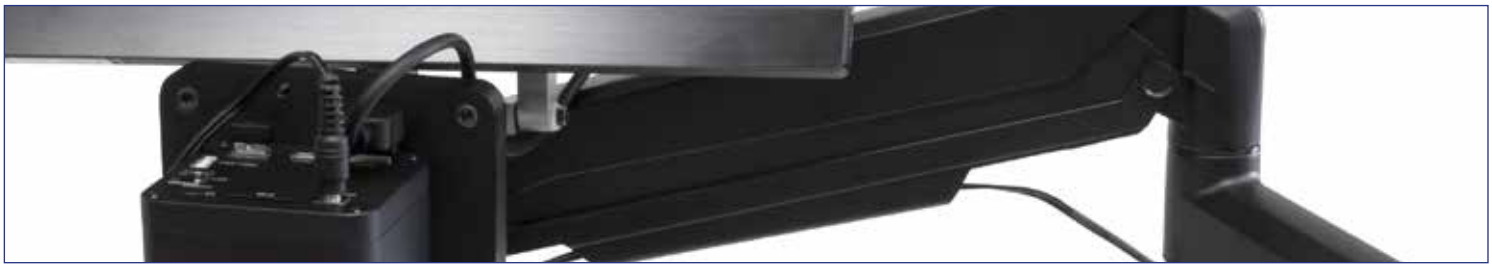
IS-4K3 - Overview

Advanced inspection system suitable for intensive use, ideal for video inspection in quality control of electronics, mechanics, and other industrial applications.
IS-4K3 includes the **real-time full HD auto-focus camera** with **relevant zooming capalibilities** (optical zoom is 1x...18x).
Crystal clear 4K live view is shown trough a large HD monitor, with **incredibly fast connection** (30 fps). Its angle of view is **fully adjustable** and it enables **instant focus** in less than 1 sec. with no need to constantly adjust lens position. In addition, the working distance goes to infinity, making it the **recommended solution to inspect multi-layered objects**.
All functions are controlled directly from the screen via a wireless mouse.
Images and videos can be saved on the SD card and easily transferred on any device.
The system is completed by the **table clamping** SZ-STL5 **highly versatile flexible arm stand**, 360° rotating, ideal for high and large samples and on every bench thanks to its compact footprint, saving valuable space on the bench.

Reduce inspection time with real-time focus from any angle



IS-4K3 - Technical Specifications



HDMI MONITOR	
Type	LCD screen 360° rotating, freely inclinable for ergonomic vision
Size	15.6"
Power supply	5V / 4A
CAMERA	
HDMI camera resolution (MP)	8
Camera resolution (n° of pixels: W x H)	3840x2160
HDMI signal output	Yes
WiFi signal output	Yes
Sensor size	1/2.8"
Sensor technology	CMOS
Sensor type	SONY STARVIS
Optical zoom	1x-18x
Rolling shutter	Yes
Autofocus	Yes
Image format	16/9
Pixel size (mm)	1.45x1.45
Frame rate full resolution (fps)	30@3840x2160
Camera power	12V / 3A
Dimensions (mm)	80 x 80 x 116
Weight (Kg)	0,68

STAND	
Type	Coarse, Pantograph, with table
Coarse total travel (mm)	50
Adjustable tension	Yes
Head holder internal diameter (mm)	76
Pillar diameter (mm)	35
Total height (mm)	327
Total width (mm)	300
Total depth (mm)	800
Horizontal arm (mm)	737
Product Weight (kg)	5.1
ACCESSORIES	
Accessories Included:	LED ringlight, HDMI cable (0,3m), Wireless Mouse, SD card and WiFi Adapter.

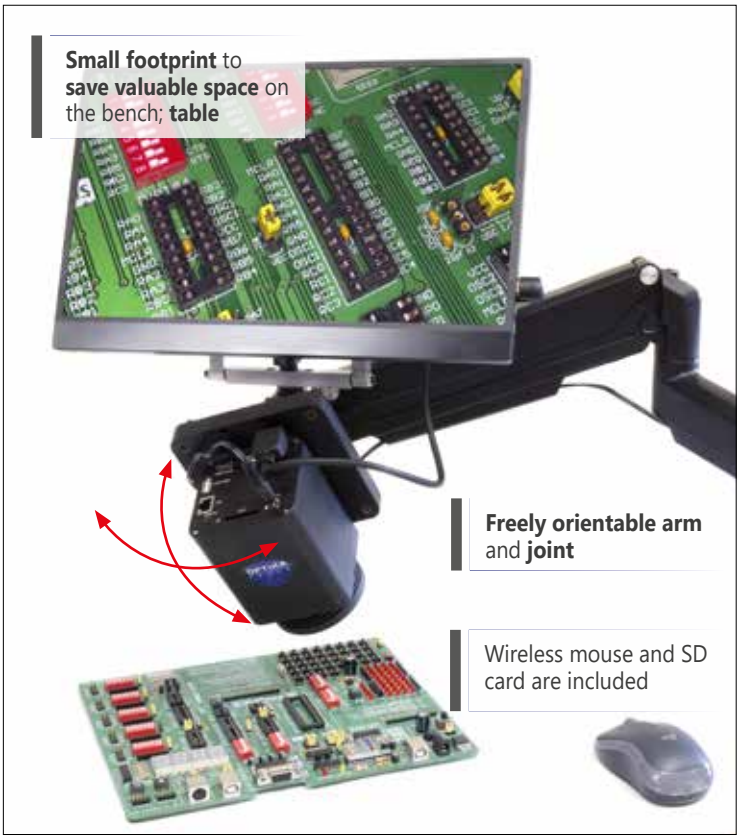
No need to constantly re-adjust the lens focus

1/2.8" CMOS 8MP camera with **powerful 1x-18x optical zoom**

On-board controls and cross grid

Sensor's main features are the **high sensitivity** and **incredible color fidelity**: save money (no need of external illuminators or ring lights)

Small footprint to **save valuable space** on the bench; **table**



Freely orientable arm and **joint**

Wireless mouse and SD card are included

Headquarters and Manufacturing Facilities

OPTIKA® S.r.l. Via Rigla, 30 - 24010 Ponteranica (BG) - ITALY - Tel.: +39 035.571.392 - info@optikamicroscopes.com

Optika Sales branches

OPTIKA® Spain spain@optikamicroscopes.com
OPTIKA® China china@optikamicroscopes.com
OPTIKA® India india@optikamicroscopes.com
OPTIKA® North America namerica@optikamicroscopes.com
OPTIKA® Central America camerica@optikamicroscopes.com
OPTIKA® Africa africa@optikamicroscopes.com