ST60/ST60N/ST70/SZM/SZMN

Series stereo microscope

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As technical improvement, manufacturer has right to make renovation in designing without notice

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ISO 14001
ISO 13485

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SUNNY INSTRUMENTS
STEREO SERIES

ST60/ST60N/ST70/SZM/SZMN

Series stereo microscope

- New design of compact and comfort
- High-performance optical component and sharp image
- Wide viewing field, high magnification and special maximum working distance
- 8 inches LCD monitor and integrated stand

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Superior optical system
Reliable operation mechanism
Complete accessories
Diverse combination

——excellent stereo series microscopes cater for the demand in the field of biological, medical, research, electronic industry for testing

- **High-quality optical system**
  Fully coated optical system, sharp and clear images with extremely good flatness and contrast. The images are brighter and more distinct even at the periphery of the visual field.

- **Larger magnification**
  Turret objectives 1X/3X、2X/4X、1X/2X、1X/4X for choice, zoom objectives 0.70X~4.5X. Optional auxiliary objectives and other eyepieces help you achieve best magnification.

- **Overlong effective working distance**
  Standard working distance is 100mm. With optional auxiliary objectives, the working distance is increased to 30mm~165mm，provide you a special maximum working space.

- **Structure design of ergonomics**
  Viewing head 45° inclined，360° rotatable，each tube allows interpupillary distance and diopter adjustments to suit the user and ergonomic design. Hand wheel two-side horizontal（axial）set, high repeatability precision of magnification-change and comfort.

- **LCD monitor serves fast test and rapid detection**
  Model DVSZMN/DVST60N each is assembled an 8 inches LCD monitor，you can gain complete clear images without eyepieces；automatic/manual white balance，provide you different-effect pictures

ST60　ST60N　DVST60N　ST70　DVSZMN　SZMN　SZM

Different heads of different magnifications, cater for your demands and appreciations of the beauty

LCD monitor

8 inches LCD monitor, presents a clear bright image. Quicker operation and more confort. Resolution ratio 800x600，CCD 520 TV lines. DVSZMN is eyepieces assembled, splitting ratio for binocular : trinocular = 50%：50%。

The main technical parameters of CCD

Imaging component size	1/3 inch
Vertical resolution	520 TV line
Pixel	768（H）X576（V）
Bright white balance	Switch between automatic balance and manual balance
Compensation	Automatic
Signal noise ratio	46db
γcharacter	0.45
Minimum illumination	3.1ux
Input voltage	12V DC(9V–14V)
Power consumption	Below1.85W

Viewing head

High eye–point, wide field eyepieces, with adjustable diopter(±5) avoid the phenomenon of margin breezing and can help to find object fast, greatly improved comfortableness of observation. Reticle assembled, interpupillary distance can be adjusted between 54mm–76mm（SZM/SZMN series 54mm–75mm）.
Newly designed ST60N/ST70/SZMN series have better properties and modern appearance.

Optics parameters of eyepieces:

Eyepiece	Standard objective		Auxiliary objective 0.5X		Auxiliary objective 1.5X		Auxiliary objective 2X	
	Working distance 100mm		Working distance 165mm		Working distance 45mm		Working distance 30mm	
	Magnification	View field	Magnification	View field	Magnification	View field	Magnification	View field
10X/20mm	7.0X	28.6mm	3.5X	57.1mm	10.5X	19mm	14X	14.3mm
	45.0X	4.4mm	22.5X	8.9mm	67.5X	3mm	90X	2.2mm
15X/15mm	10.5X	21.1mm	5.25X	42.8mm	15.75X	14.3mm	21X	10.7mm
	67.5X	3.3mm	33.75X	6.7mm	101.25X	2.2mm	135X	1.7mm
20X/10mm	14.0X	14.3mm	7.0X	28.6mm	21.0X	9.5mm	28X	7.1mm
	90.0X	2.2mm	45.0X	4.4mm	135.0X	1.5mm	180X	1.1mm

Futuramic configurations and various combinations help you breeze through working time

Base & stand

- Fan base and pillar stand: Use with ST70SA1；With clip and φ100mm white/black plate；Post height 248mm，Pillar size φ32mm；Stage size 210 mm X273 mm X22mm
- Integrated stand: Height 260mm;Focusing bracket movement range 110mm；Drawtube size φ76mm; stage size 300 mm X303 mm X45mm
- Pillar style for incident and transmitted LED light stand: Use with ST70SA1；Power supply 110V–240V, the LED adjustable brightness; Post height 280mm; Pillar size φ32mm；Stage size 303mmX290mmX47mm
- Double arm and pillar stand: The dual arm design provides exceptional stability. Vertical post height 380mm，Pillar size φ32mm；Focus post height 140mm，Pillar size φ32mm；Horizontal adjustment range 235mm; Stage size 210mmX260mmX20mm

Focusing bracket

- Focusing bracket（SZMA1）: Focusing range 50 mm；Pillar size φ32mm；Drawtube size φ76mm；Dimension from centerline of post to centerline of optics 150mm；Designed for used with B4、B5、BL3、SZSTL1、SZSTL2 Base. With SZ–PD1 and SZFH1 installed hole
- Industrial binding bracket 1（SZA2）: Focusing range: 50mm；Pillar size φ24.5mm；Drawtube size φ76mm
- Industrial binding bracket 2（SZA3）: Focusing range 50mm；Drawtube size φ76mm；Connector size φ16mm

Additional illumination

- Ring light: It supplies high brightness and even illumination, and is convenient and easily to be used, long life,220V/8W
- Light: SZML1 12V15W halogen bulb；SZ–T1 transformer, used with SZML1；SZFH1 reflected illuminator bracket；SZPD1 reflected illuminator connector
- Cold light source：The unit comprises small volume, light weight, high efficiency, long life, sturdy power supply output, 100W、150W, color temperature: 3200K, and a filter assembly.
- LED illuminator: It owns small size, low power consumption, long life, small volume, brightness adjustable and stable.

Photographic devices and professional image processing software, meet commands of different image analysis

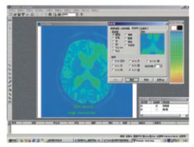
Digital video device

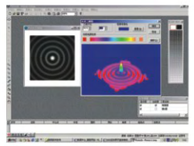
SZMCTV、SZMCTV1/2、SZMCTV1/3：Be suitable for trinocular head of all models, use with dedicated C mount.
Image can be output to monitor or TV as video signals, or to computer or projector as digital signals.

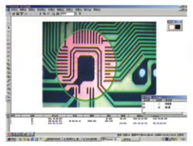
Could fixed with digital CCD、dedicated C mount, suit for trinocular head of all models.
It can output the image to computer and projector as digit video signals.
Our professional software---Snnny Photolib，can help you do measure and analysis on images.

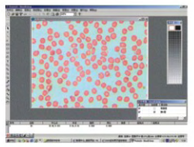
Technical parameters of CCD & COMS

Image device	CCD，1/3 inch	CMOS，1/2 inch
Effective pixels	520TV	300M pixels（or above），2048X1536
Frame rate	50 fps	10 fps at 2048X1536,40 fps at 800X600
Exposure	Auto	Auto/manual
White balance	Auto/manual	Auto/manual
Input voltage	12VDC（9V14V）	USB bus power
Signal output	C-VIDEO、S-VIDEO、USB2.0	USB2.0









Snnny Photolib

Function	Support Twain interface and VFW interface frame grabber;
	Support color adjustment, image transform, morphological processing, image enhancement;
	Support 24 bit true color image capture. Support RGB CMY SHV YUV color models processing and analysis;
	Support Undo, Redo;
	Support geometry parameters measurements;
	The analysis results can output to html files or clipboard. Print can be performed using specified format or report. The image can be printed with photo quality.
Operation systems	Windows95，Windows98，Windows2000，WindowsXP

ST60 specifications

Specification		Model					
Part	Description	ST60-24B1	ST60-24B2	ST60-24B3	ST60-24T1	ST60-24T2	ST60-24T3
Eyepiece (high-eyepoint, wide-field)	WF10X/20mm	●●	●●	●●	●●	●●	●●
	WF10X/20rmm(Reticle)						
	WF15X/15mm						
	WF15X/15mm(Reticle)						
	WF20X/10mm						
	WF20X/10mm(Reticle)						
Eye-cap		●●	●●	●●	●●	●●	●●
Viewing head	St6024(binocular)	●	●	●			
	ST6024TR(trinocular)				●	●	●
Auxiliary objective	0.5X/165mm、1.5X/45mm、2X/30mm						
Focus arm	SZMA1	●	●	●	●	●	●
	SZA1						
	ST70A1						
Focus arm	SZA2、SZA3(for industry)						
Base	SZST1						
	SZST2						
	SZMST1	●			●		
	B4						
	B5						
	B6						
	SZST3						
	SZMST2		●			●	
	SZMST3			●			●
	BL1						
	BL3						
	SZSTL1						
	SZSTL2						
	SZB1						
Transformer	SZT1						
Light	ST70L1(LED)						
	SZL1(12V15W)						
	SZML1(12V15W)		●	●		●	●
Holder	SZFH1/SZPD1						
Darkfield condenser	S/ST-DK						
Ring light	220V/110V,8W						
	LED：40/54grains						
Other light	Cold light(ring/sigle/double)						
	Fiber(ring/sigle/double)						
Mount/adaptor	SZMPH						
	C-mount and adaptor						
	1/2CTV						
	1/3CTV						
Gem clamp	S/ST-GC						
Analog/digital	S912						
Video catch card							
Softwaare system	Photolib						
Rotatable stage	SZMSGR						
Measurement stage	SZMSGM1(0-25mm/150*150mm)						

ST60N specifications

Specification		Model						
Part	Description	ST60N-24B1	ST60N-24B2	ST60N-24B3	ST60N-24T1	ST60N-24T2	ST60N-24T3	DV ST60N
Eyepiece (high-eyepoint, wide-field)	WF10X/20mm	●●	●●	●●	●●	●●	●●	
	WF10X/20rmm(reticle)							
	WF15X/15mm							
	WF15X/15mm(reticle)							
	WF20X/10mm							
	WF20X/10mm(reticle)							
Eye-cap		●●	●●	●●	●●	●●	●●	
Viewing head	ST60N24(binocular)	●	●	●				
	ST60N24TR(trinocular)				●	●	●	
	DVST60N（LCD monitor）							●
Auxiliary objective	0.5X/165mm、0.75X/105mm、1.5X/45mm、2X/30mm							
Focus arm	SZMA1		●	●		●	●	
	SZA1							
	SZMNA1	●			●			
	ST70A1							●
Focus arm	SZA2、SZA3(for industry)							
Base	SZST1							
	SZST2							
	SZMST1							
	B4	●			●			●
	B5							
	B6		●			●		
	SZMST2			●			●	
	SZMST3							
	BL1							
	BL3							
	SZSTL1							
	SZSTL2							
	SZB1							
Transformer	SZT1							
Light	ST70L1(LED)							
	SZL1(12V15W)							
	SZML1(12V15W)		●	●		●	●	
Holder	SZFH1/SZPD1							
Darkfield condenser	S/ST-DK							
Ring light	220V/110V,8W							
	LED：40/54grains							
Other light	Cold light(ring/sigle/double)							
	Fiber(ring/sigle/double)							
Mount/adaptor	SZMPH							
	C-mount and adaptor							
	1/2CTV							
	1/3CTV							
Gem clamp	S/ST-GC							
Analog/digital	S912							
Video catch card								
Softwaare system	Photolib							
Rotatable stage	SZMSGR							
Measurement stage	SZMSGM1(0-25mm/150*150mm)							

ST70 specifications

Specification		Model	
Part	Description	ST70/13B4	ST70/13BL3
Eyepiece (high-eyepoint, wide-field)	WF10X/23mm	●●	●●
	WF10X/23rmm(reticle)		
	WF10X/22mm		
	WF10X/22rmm(reticle)		
	WF15X/16mm		
	WF15X/16mm(reticle)		
	WF20X/12mm		
	WF20X/12mm(reticle)		
Eye-cap		●●	●●
Viewing head	ST7013(binocular)	●	●
	ST7013TR(trinocular)		
Auxiliary objective	0.5X/165mm、1.5X/45mm、2X/30mm		
Focus arm	SZMA1		
	SZA1		
	ST70A1	●	●
Focus arm	SZA2、SZA3(for industry)		
Base	SZST1		
	SZST2		
	SZMST1		
	B4	●	
	B5		
	B6		
	SZST3		
	SZMST2		
	SZMST3		
	BL1		
	BL3		●
	SZSTL1		
	SZSTL2		
	SZB1		
Transformer	SZT1		
Light	ST70L1(LED)		●
	SZL1(12V15W)		
	SZML1(12V15W)		
Holder	SZFH1/SZPD1		
Darkfield condenser	S/ST-DK		
Ring light	220V/110V,8W		
	LED：40/54grains		
Other light	Cold light(ring/sigle/double)		
	Fiber(ring/sigle/double)		
Mount/adaptor	SZMPH		
	C-mount and adaptor		
	1/2CTV		
	1/3CTV		
Dust glass	SZDCL		
Gem clamp	S/ST-GC		
Analog/digital	S912		
Video catch card			
Softwaare system	Photolib		
Rotatable stage	SZMSGR		
Measurement stage	SZMSGM1(0-25mm/150*150mm)		

SZM45 specifications

Specification		Model						
Part	Description	SZM45-B1	SZM45-B2	SZM45-B3	SZM45-T1	SZM45-T2	SZM45-T3	DMSZM45
Eyepiece (high-eyepoint, wide-field)	WF10X/20mm	●●	●●	●●	●●	●●	●●	●●
	WF10X/20rmm(reticle)							
	WF15X/15mm							
	WF15X/15mm(reticle)							
	WF20X/10mm							
	WF20X/10mm(reticle)							
Eye-cap		●●	●●	●●	●●	●●	●●	●●
Viewing head	SZM7045(binocular)	●	●	●		●	●	●
	SZM7045TR(trinocular)				●	●	●	
	SZM7045V (digital)							●
Auxiliary objective	0.5X/165mm、0.75X/105mm、1.5X/45mm、2X/30mm							
Focus arm	SZMA1	●	●	●	●	●	●	●
	SZA1							
	ST70A1							
Focus arm	SZA2、SZA3(for industry)							
Base	SZST1							
	SZST2							
	SZMST1	●			●			
	B4							
	B5							
	B6							
	SZST3							
	SZMST2		●			●		●
	SZMST3			●			●	
	BL1							
	BL3							
	SZSTL1							
	SZSTL2							
	SZB1							
Transformer	SZT1							
Light	ST70L1(LED)							
	SZL1(12V15W)							
	SZML1(12V15W)		●	●		●	●	●
Holder	SZFH1/SZPD1							
Darkfield condenser	S/ST-DK							
Ring light	220V/110V,8W							
	LED: 40/54grains							
Other light	Cold light(ring/sigle/double)							
	Fiber(ring/sigle/double)							
Mount/adaptor	SZMPH							
	C-mount and adaptor							
	1/2CTV							
	1/3CTV							
Gem clamp	S/ST-GC							
Analog/digital	S912							●
Video catch card								
Softwaare system	Photolib							●
Rotatable stage	SZMSGR							
Measurement stage	SZMSGM1(0-25mm/150*150mm)							

SZM45N specifications

Specification		Model						
Part	Description	SZM45N-B1	SZM45N-B2	SZM45N-B3	SZM45N-T1	SZM45N-T2	SZM45N-T3	DVSZMN645
Eyepiece(high-eyepoint,wide-field)(optional: diopter adjustment)	WF10X/20mm	●●	●●	●●	●●	●●	●●	
	WF10X/20rmm(reticle)							
	WF15X/15mm							
	WF15X/15mm(reticle)							
	WF20X/10mm							
	WF20X/10mm(reticle)							
Eye-cap		●●	●●	●●	●●	●●	●●	●●
Viewing head	SZMN7045(binocular)	●	●	●				
	SZMN7045TR(trinocular)				●	●	●	
	SZMN645(binocular)							
	SZMN645(trinocular)							
	DVSZMN645 (LCD monitor)							●
Auxiliary objective	0.5X/165mm、0.75X/105mm、1.5X/45mm、2X/30mm							
Focus arm	SZMA1		●	●		●	●	
	SZA1							
	ST70A1	●			●			●
Focus arm	SZA2、SZA3(for industry)							
Base	SZST1							
	SZST2							
	SZMST1							
	B4	●			●			●
	B5							
	B6							
	SZST3							
	SZMST2		●			●		
	SZMST3			●			●	
	BL1							
	BL3							
	SZSTL1							
	SZSTL2							
	SZB1							
Transformer	SZT1							
Light	ST70L1(LED)							
	SZL1(12V15W)							
	SZML1(12V15W)		●	●		●	●	
Holder	SZFH1/SZPD1							
Darkfield condenser	S/ST-DK							
Ring light	220V/110V,8W							
	LED: 40/54grains							
Other light	Cold light(ring/sigle/double)							
	Fiber(ring/sigle/double)							
Mount/adaptor	SZMPH							
	C-mount and adaptor							
	1/2CTV							
	1/3CTV							
Gem clamp	S/ST-GC							
Analog/digital	S912							
Video catch card								
Softwaare system	Photolib							
Rotatable stage	SZMSGR							
Measurement stage	SZMSGM1(0-25mm/150*150mm)							