

# SMZ-140 Series

1:4 Zoom Ratio Stereomicroscope



# SMZ-140 SCHEMATIC DIAGRAMS/SPECIFICATIONS

## SMZ-140/143 SCHEMATIC DIAGRAMS

SMZ-140-N2GG Binocular Stereomicroscope	SMZ-143-N2GG Trinocular Stereomicroscope
<p style="text-align: right;">Unit: mm</p>	<p style="text-align: right;">Unit: mm</p>

SMZ-140(60)-N2GG Binocular 60° Observation Stereomicroscope
<p style="text-align: right;">Unit: mm</p>

## SMZ-140/143 SPECIFICATIONS

<b>Microscope Body - Standard</b>	
Optical System	Greenough Stereoscopic
Head Observations	Binocular 45° - [SMZ-140] Binocular 60° - [SMZ-140-60°] Trinocular 45° - [SMZ-143] - light distribution 50/50 via right eye tube/trinocular port
Interpupillary Adjustment	54mm - 76mm
Diopter Adjustment [on eye tubes]	± 5°
Zoom Ratio	4 : 1
Magnification Range	10X - 40X
Objective	1X
Working Distance	80mm
Eyepieces	WF 10X/F.N.20
Field of View Range	20.0mm - 5.0mm
<b>Microscope Body - Optional</b>	
Magnification Range	1.75X - 180X
Objectives	0.3%X, 0.5X, 0.63X, 0.75X, 1.5X
Working Distance	33.0mm - 200mm
Eyepieces	WF 5X/F.N.22, WF 15X/F.N.13, WF 20X/F.N.10, WF 30X/F.N.8
Field of View Range	62.9mm - 1.3mm
<b>Documentation [SMZ-143 only]</b>	
SLR Camera Adapter	2.0X SLR Projection Lens
C-mount camera adapters	0.4X, 0.5X

FS01 - N2GG Arm [without illumination]



- Rack and pinion focusing mechanism
- Focus adjustment: 45mm
- Pole mount diameter: Ø 25mm
- Head mount diameter: Ø 74mm

FS02 - N2GG Arm [with illumination]



- Rack and pinion focusing mechanism
- Reflected halogen 12V / 15W illumination
- Focus adjustment: 45mm
- Pole mount diameter: Ø 25mm
- Head mount diameter: Ø 74mm

FS03 - FBGG [2111/2112] Arm [without illumination]



- V-frame, ball bearing focusing mechanism
- Focus adjustment: 50mm
- Pole mount diameter: Ø 32mm
- Head mount diameter: Ø 74mm

FS04 - FBGG [2111/2112] Arm [with illumination]

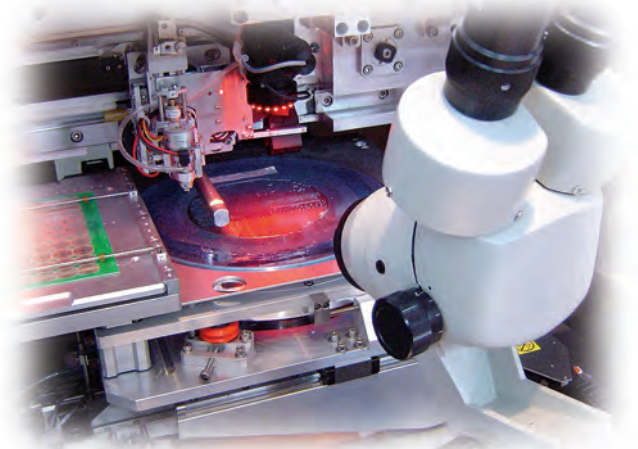


- V-frame, ball bearing focusing mechanism
- Reflected halogen 12V / 10W illumination
- Focus adjustment: 50mm
- Pole mount diameter: Ø 32mm
- Head mount diameter: Ø 74mm

FI01 - Industrial Arm



- V-frame, ball bearing focusing mechanism
- Illuminator port
- Focus Adjustment: 50mm
- Head mount diameter: Ø 74mm
- Nipple diameter: Ø 15.8mm
- Adjustment range: ± 90°



■ SMZ-140 and FS01: N2GG Arm on Die Bonder. Image courtesy of Lexus Automation.

2112 Large Working Area Incident Illumination Stand



- Width of surface: 330mm
- Length of surface: 280mm
- Height of pole: 291mm
- Mounting Diameter: Ø32mm

Manual Movement Stand



- Width of surface: 450mm
- Length of surface: 350mm
- X movement: 400mm
- Y movement: 210mm
- Lockable Movements

1105 Universal Stand



- Diameter of base: 200mm
- Height of pole: 350mm
- Horizontal movement: 260mm
- Mounting Diameter: Ø25mm

1105S Special Universal Stand



- Width of base: 250mm
- Length of base: 250mm
- Height of pole: 350mm
- Horizontal movement: 410mm
- Mounting Diameter: Ø25mm

1107 Articulating Arm Boom Stand



- Width of base: 300mm
- Length of base: 300mm
- Height of pole: 600mm
- Optical Centre Max: 780mm
- Mounting Diameter: Ø25mm

1108 Ball Bearing Boom Stand



- Width of base: 300mm
- Length of base: 300mm
- Height of pole: 600mm
- Optical Centre Max: 638mm
- Mounting Diameter: Ø25mm

1109 Articulating Arm Boom Stand



- Table Clamp Type
- Height of pole: 600mm
- Optical Centre Max: 780mm
- Mounting Diameter: Ø25mm

1110 Ball Bearing Boom Stand



- Table Clamp Type
- Height of pole: 600mm
- Optical Centre Max: 638mm
- Mounting Diameter: Ø25mm

2105I Industrial Arm Boom Stand



- Width of base: 250mm
- Length of base: 250mm
- Height of pole: 330mm
- Horizontal movement: 400mm
- Nipple Mount Diameter: Ø15.8mm

□ Some stands may not be available in your area. Please check with your local sales office.

# SMZ-140/143 STANDS / ILLUMINATIONS

## 1104S Incident Illumination



- Length of base: 280mm
- Width of base: 220mm
- Height of pole: 245mm
- Mounting Diameter: Ø 25mm

## FBGG Stand



- Large working area
- Mounting Diameter: Ø 32mm
- □ 12V / 10W halogen transmitted light [intensity control]
- Universal power input 110V - 220V

## Fixed Mount Stand



- V-frame, ball bearing focusing mechanism
- Precentred optical center
- Length of base: 280mm
- Width of base: 330mm
- Head mount diameter: Ø 74mm
- Focus adjustment: 137mm

# SMZ-140/143 AUXILIARY ILLUMINATION

## K2401 FLUORESCENT RING ILLUMINATOR

- Colour Temperature: 6400K
- Even white light
- 12W power consumption
- 3 screw ring mount



## MLC-150 COLD LIGHT SOURCE

- Colour Temperature Indication
- Colour Temperature Range: 2500K - 3200K
  - Above 5600K with blue filter
- Remote or local intensity control
- 21V / 150W switching power
- Filter holder
- 220(H) x 193(W) x 112(D) mm

## LIGHT GUIDE OPTIONS

### FLEXIBLE RING LIGHT GUIDE

- Length: 1,000mm
- Distal End Diameter: Ø 61mm



### 1-ARM GOOSENECK LIGHT GUIDE

- Length: 500mm
- Distal End Diameter: Ø 13mm



### BIFURCATED GOOSENECK LIGHT GUIDE

- Length: 500mm [each arm]
- Distal End Diameter: Ø 9mm



□ Some illuminators and stands may not be available in your area. Please check with your local sales office.





# SMZ-140/143 ACCESSORIES

## AUXILIARY EYEPIECES

				<b>Mag.</b>	<b>F.N.</b>
				WF 5X	22
				WF 15X	13
				WF 20X	10
				WF 30X	8

Mag. - Magnification, F.N. - Field Number

## MICROMETER EYEPIECES

	Description	Mag.	F.N.
	Graduated linear line and plain cross hair, point = 0.1mm/14mm	WF 10X	20
	Graduated linear line, Point=0.2mm/14mm	WF 10X	20
	360° Protractor, 30° Increments	WF 10X	20
	Graduated linear line and double cross hair, point = 0.1mm/10mm	WF 20X	10

Mag. - Magnification, F.N. - Field Number

## AUXILIARY OBJECTIVES

	Mag.	W.D.(mm)
	0.35X	200
	0.5X	133
	0.63X	110
	0.75X	89
	1.5X	33

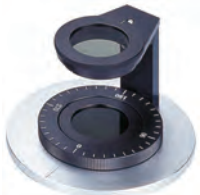
Mag. - Magnification, W.D.- Working Distance

## CAMERA ADAPTERS


		
2X SLR Projection Lens [for 35mm SLR cameras]	0.4X C-mount camera adapter [for 1/3" chip sensors]	0.5X C-mount camera adapter [for 1/2" chip sensors]

□ Some accessories may not be available in your area. Please check with your local sales office.

## POLARISING EQUIPMENT

<ul style="list-style-type: none"> <li>■ Base stand mountable 1-piece set</li> <li>■ 360° independently rotary polariser [top]</li> <li>■ 360° independently rotary analyser [bottom]</li> </ul>	
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## POLARISING SET

<ul style="list-style-type: none"> <li>■ Zoom body screw mount polariser</li> <li>■ Base stand mountable 360° rotary analyser</li> </ul>	
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## DARKFIELD ATTACHMENT

<ul style="list-style-type: none"> <li>■ Conical glossy central stop for diffracted light observation</li> <li>■ Iris diaphragm for controlling the shape of light</li> <li>■ Base stand mountable</li> </ul>	
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## GLIDING STAGE

<ul style="list-style-type: none"> <li>■ Base stand mountable</li> <li>■ Manual manipulation</li> <li>■ 360° rotary for various observations</li> </ul>	
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## MECHANICAL STAGE

<ul style="list-style-type: none"> <li>■ Base stand mountable</li> <li>■ Max. X distance: 75mm</li> <li>■ Max. Y distance: 50mm</li> <li>■ Dimension in mm: 222.8(W) x 170(L) x 29.5(H)</li> </ul>	
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## JEWELLERY CLIP

<ul style="list-style-type: none"> <li>■ Easily attachable for jewellery or mineral observation</li> <li>■ Movable upon attachment</li> </ul>	
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# SMZ-140/143 OPTICAL DATA

Eyepiece	Mag. (X)	Standard Objectives		Auxiliary Objectives									
				0.35X		0.5X		0.63X		0.75X		1.5X	
		WD 80mm		WD 200mm		WD 133mm		WD 110mm		WD 89mm		WD 33mm	
		Mag.	FD (mm)	Mag.	FD (mm)	Mag.	FD (mm)	Mag.	FD (mm)	Mag.	FD (mm)	Mag.	FD (mm)
5X/22	1	5.0	22.0	1.8	62.9	2.5	44.0	3.2	34.9	3.8	29.3	7.5	14.7
	2	10.0	11.0	3.5	31.4	5.0	22.0	6.3	17.5	7.5	14.7	15.0	7.3
	3	15.0	7.3	5.3	21.0	7.5	14.7	9.5	11.6	11.3	9.8	22.5	4.9
	4	20.0	5.5	7.0	15.7	10.0	11.0	12.6	8.7	15.0	7.3	30.0	3.7
10X/20	1	10.0	20.0	3.5	57.1	5.0	40.0	6.3	31.7	7.5	26.7	15.0	13.3
	2	20.0	12.0	7.0	28.6	10.0	20.0	12.6	15.9	15.0	13.3	30.0	6.7
	3	30.0	6.7	10.5	19.0	15.0	13.3	18.9	10.6	22.5	8.9	45.0	4.4
	4	40.0	5.0	14.0	14.3	20.0	10.0	25.2	7.9	30.0	6.7	60.0	3.3
15X/13	1	15.0	13.0	5.3	37.1	7.5	26.0	9.5	20.6	11.3	17.3	22.5	8.7
	2	30.0	6.5	10.5	18.6	15.0	13.0	18.9	10.3	22.5	8.7	45.0	4.3
	3	45.0	4.3	15.8	12.4	22.5	8.7	28.4	6.9	33.8	5.8	67.5	2.9
	4	60.0	3.3	21.0	9.3	30.0	6.5	37.8	5.2	45.0	4.3	90.0	2.2
20X/10	1	20.0	10.0	7.0	28.6	10.0	20.0	12.6	15.9	15.0	13.3	30.0	6.7
	2	40.0	5.0	14.0	14.3	20.0	10.0	25.2	7.9	30.0	6.7	60.0	3.3
	3	60.0	3.3	21.0	9.5	30.0	6.7	37.8	5.3	45.0	4.4	90.0	2.2
	4	80.0	2.5	28.0	7.1	40.0	5.0	50.4	4.0	60.0	3.3	120.0	1.7
30X/8	1	30.0	8.0	10.5	22.9	15.0	16.0	18.9	12.7	22.5	10.7	45.0	5.3
	2	60.0	4.0	21.0	11.4	30.0	8.0	37.8	6.3	45.0	5.3	90.0	2.7
	3	90.0	2.7	31.5	7.6	45.0	5.3	56.7	4.2	67.5	3.6	135.0	1.8
	4	120.0	2.0	42.0	5.7	60.0	4.0	75.6	3.2	90.0	2.7	180.0	1.3

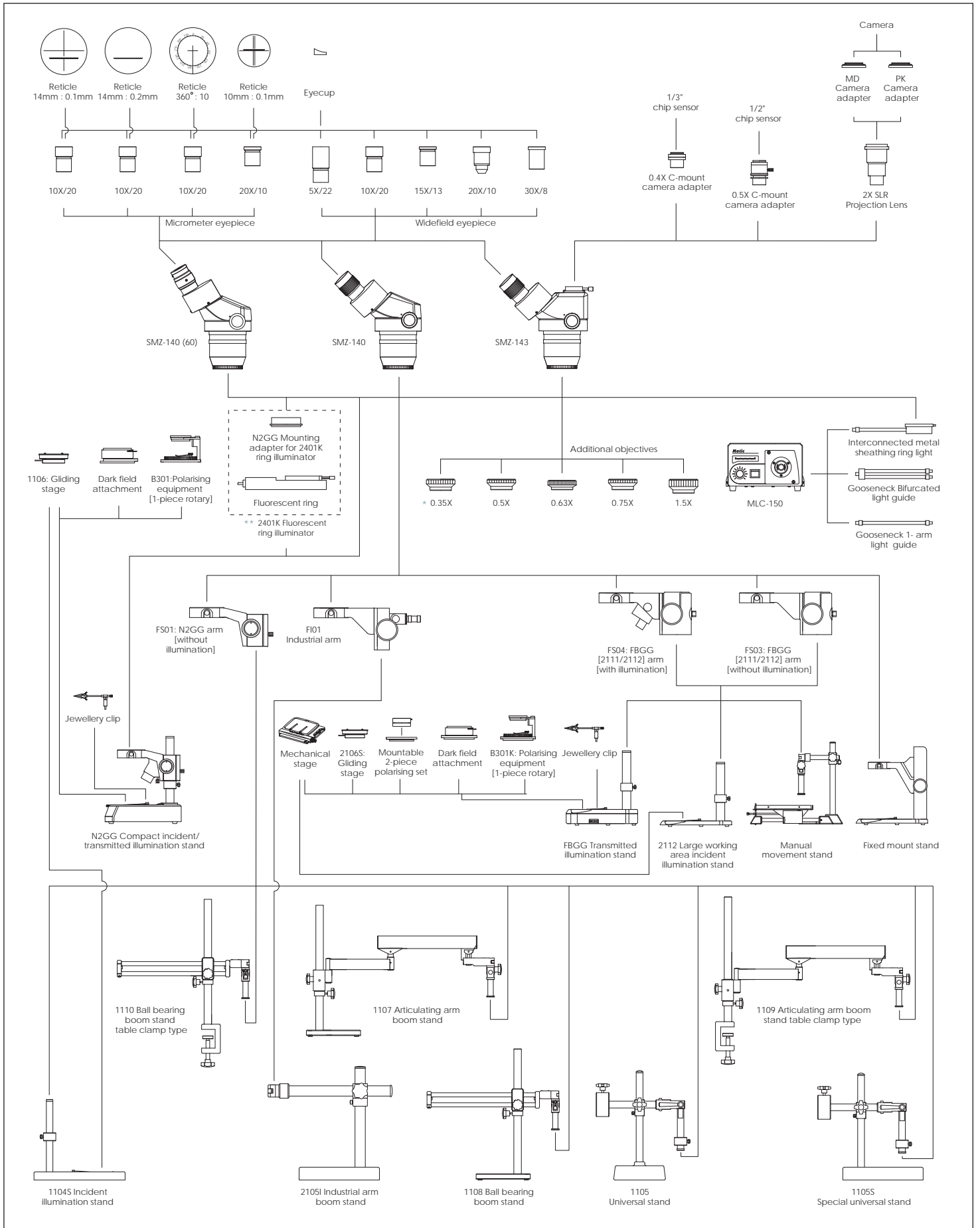
Note : "WD" represents Working Distance, "Mag." represents Magnification, "FD" represents Field Diameter.



## □ SMZ-140/143 Digital Option

Available in two digital options for either simultaneous three visual outputs [DMW-143] or two megapixel USB 2.0 output [DM-143-B]. Please refer to our DMW-143 and DM-143-B brochures for further information.

# SMZ-140/143 SYSTEM DIAGRAM



\* Usage of 0.35X auxiliary objective requires a pole exceeding 250mm in height.  
 \*\* When selecting the fluorescent ring illuminator, please note the country plug and voltage required.



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Sales: 888-777-8835 • Email: [sales@m-depot.com](mailto:sales@m-depot.com)

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**Motic Incorporation Ltd. (HONG KONG)**

Rm 2907-8, Windsor House, 311 Gloucester Road, Causeway Bay, Hong Kong  
Tel: 852-2837 0888 Fax: 852-2882 2792

**Motic Instruments Inc. (CANADA)**

180-4320 Viking Way Richmond, B.C. V6V 2L4 Canada  
Tel: 1-877-977 4717 Fax 1-604-303 9043

**For inquiries in UK (UK)**

Saracens House, 25 St. Margarets Green, Ipswich, IP4 2BN, Suffolk, UK  
Tel: 44-(0)-14732 81909 Fax 44-(0)-14732 11508

**Motic Deutschland GmbH (GERMANY)**

Gewerbepark Spilburg, Spilburgstrasse 1 D-35578 Wetzlar Germany  
Tel: 49-6441-210 010 Fax 49-6441-210 0122

**Motic Spain, S.L. (SPAIN)**

Poligon Industrial Les Corts, Cami del Mig, 112 08349 Cabrera de Mar Barcelona - Spain  
Tel: 34-93-756 6286 Fax: 34-93-756 6287

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