

Living up to Life



# Leica E Series

Technical Information

## Leica E Series – Features, Specifications

<b>Stereomicroscope</b>	<b>Leica ES2</b>	<b>Leica EZ4 10×</b>	<b>Leica EZ4 16×</b>
Type of microscope	10° Greenough	10° Greenough	10° Greenough
Optical system	parfocal	parfocal	parfocal
Magnification changer	2-level, 3:1	zoom 4.4:1	zoom 4.4:1
Eyepieces for spectacle wearers	10×/20 fixed	10×/20 fixed	16×/15 fixed
Diopter correction	–	–	–
Viewing angle	60°	60°	60°
Working distance	100 mm	100 mm	100 mm
Magnification range	10×/30×	8× to 35×	12.8× to 56×
Maximum resolution	159 Lp/mm	170 Lp/mm	170 Lp/mm
Maximum numerical aperture	0.053 nA	0.057 nA	0.057 nA
Object field diameter	20 mm / 6.7 mm	5.7 to 25 mm	4.3 to 18.8 mm
Eyecups	replaceable	replaceable	replaceable
Interpupillary distance	50 to 75 mm	50 to 75 mm	50 to 75 mm
Beam path	100 % visual	100 % visual	100 % visual
Focusing drive	Individually adjustable ease of movement, 75 mm travel	Individually adjustable ease of movement, 75 mm travel	Individually adjustable ease of movement, 75 mm travel
Grip	integrated	integrated	integrated
<b>Illumination system</b>			
LED incident light and transmitted light	integrated, independent or combined	integrated, independent or combined, dimmable	integrated, independent or combined, dimmable
Control	On/off switch	membrane switch	membrane switch
Incident light method	angled incident light with three upper LEDs	- maximum intensity with 5 LEDs, - angled incident light with LEDs, - side light with 3 LEDs	- maximum intensity with 5 LEDs, - angled incident light with LEDs, - side light with 3 LEDs
Dimmer	–	yes, for incident and transmitted light	yes, for incident and transmitted light
Auto OFF	–	after 2 hours	after 2 hours
LED service life	approx. 25,000 hours	approx. 25,000 hours	approx. 25,000 hours
Light quality	homogeneous daylight, free of UV and IR	homogeneous daylight, free of UV and IR	homogeneous daylight, free of UV and IR
Maintenance	maintenance-free	maintenance-free	maintenance-free
Power supply	universal from 100 V to 240 V, voltage-sensitive, integrated	universal from 100 V to 240 V voltage -sensitive, integrated	universal from 100 V to 240 V, voltage-sensitive, integrated

<b>Stereomicroscope</b>	<b>Leica EZ4, open</b>	<b>Leica EZ4 W</b>
Type of microscope	10° Greenough	10° Greenough
Optical system	parfocal	parfocal
Magnification changer	zoom 4.4:1	zoom 4.4:1
Eyepieces for spectacle wearers	replaceable, fixed or adjustable: 10×/20, 16×/16, 20×/12 not suitable for spectacle wearers	10×/20 fixed
Diopter correction	from +5 to -5 (adjustable eyepieces)	–
Viewing angle	60°	60°
Working distance	100 mm	100 mm
Magnification range	depending on eyepieces used: 8× to 70×	8× to 35×
Maximum resolution	170 Lp/mm	170 Lp/mm
Maximum numerical aperture	0.057 nA	0.057 nA
Object field diameter	depending on eyepieces used: 3.4 to 25 mm	5.7 to 25 mm
Eyecups	replaceable	replaceable
Interpupillary distance	50 to 75 mm	50 to 75 mm
Beam path	100 % visual	50 % visual and 50 % video/photo
Focusing drive	individually adjustable ease of movement, 75 mm travel	individually adjustable ease of movement, 75 mm travel
Grip	integrated	integrated
<b>Illumination system</b>		
LED incident light and transmitted light	integrated, independent or combined, dimmable	integrated, independent or combined, dimmable
Control	membrane switch	membrane switch
Incident light method	- maximum intensity with 5 LEDs, - angled incident light with LEDs, - side light with 3 LEDs	- maximum intensity with 5 LEDs, - angled incident light with LEDs, - side light with 3 LEDs
Dimmer	yes, for incident and transmitted light	yes, for incident and transmitted
Auto OFF	after 2 hours	after 2 hours
LED service life	approx. 25,000 hours	approx. 25,000 hours
Light quality	homogeneous daylight, free of UV and IR	homogeneous daylight, free of UV and IR
Maintenance	maintenance free	maintenance-free
Power supply	universal from 100 V to 240 V, voltage-sensitive, integrated	universal from 100 V to 240 V, voltage-sensitive, integrated

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<b>Stereomicroscope</b>	<b>Leica ES2</b>	<b>Leica EZ4 10×</b>	<b>Leica EZ4 16×</b>
<b>Accessories</b>			
Measurement graticule/ stage micrometer			
<b>Other</b>			
Dimensions and weights	3.82 kg, 180 × 255 × 365	3.82 kg, 180 × 255 × 365	3.82 kg, 180 × 255 × 365
Ambient conditions, operation	+10°C to +40°C / rel. hum. to 35°C: 75 % / atmospheric pressure 700 to 1,060 hPa / storage: 20°C to 55°C		
Storage and transport	–20°C to + 52°C / rel. hum. 10 – 95 % (non-condensing) / atmospheric pressure 500 to 1,200 hPa		
Standards	CE Communauté Européenne / CSA Canadian Standards Association (USA, Canada)		

<b>Stereomicroscope</b>	<b>Leica EZ4, open</b>	<b>Leica EZ4 W</b>
<b>Accessories</b>		
Measurement graticule/ stage micrometer	for length measurements, for use with adjustable eyepieces	
<b>Other</b>		
Dimensions and weights	3.64 kg, 280 × 255 × 365	4.17 kg, 180 × 155 × 365
Ambient conditions, operation	+10°C to +40°C / rel. hum. to 35°C: 75 % / atmospheric pressure 700 to 1,060 hPa / storage: 20°C to 55°C	
Storage and transport	-20°C to + 52°C / rel. hum. 10 – 95 % (non-condensing) / atmospheric pressure 500 to 1,200 hPa	
Standards	CE Communauté Européenne / CSA Canadian Standards Association (USA, Canada)	
<b>Digital camera</b>		
Exposure time		1 msec – 500 msec
Live image		30 fps – depends on mode and resolution setting
Full frame image acquisition		5.0 megapixels max.
Movie clip		1,920 x 1,080 max.
Color depth		24-bit
Data format		JPEG / TIFF / BMP / MP4 (choices depend on capture device)
Operating systems		Windows 7, 8, Windows Vista, Macintosh OS X, Mobile devices (iOS 7, 8 and Android 4.2+)
Software available		Leica AirLab (mobile devices), Leica LAS EZ (PC), Leica LAS (PC), Leica Acquire (Mac)
Min. computer config.		PC / Mac, Intel Core 2 Duo, > 2.4 GHz, 4 GB RAM, 24-bit graphics, 1,248 × 1,024
Min. display specification		1,920 × 1,080 resolution, HDMI connection, DVI connection possible with HDMI/DVI adapter cable (not provided)

# Leica E Series – Optical Data

ES2 (10 447 202)				EZ4 (10 447 197) and EZ4 W (10 450 629)			
Eyepieces	Position at magnification-changer	Magnification total	Object field Ø in mm	Eyepieces	Position at magnification-changer	Magnification total	Object field Ø in mm
10×/20	10	10×	20	10×/20	8	8×	25
	30	30×	6.7		10	10×	20
			12.5		12.5×	16	
			16		16×	12.5	
			20		20×	10	
			25		25×	8	
			30		30×	6.7	
			35		35×	5.7	

EZ4 with 16× eyepieces (10 447 198)				EZ4 without eyepieces (10 447 199) + eyepieces 10×/20			
Eyepieces	Position at magnification-changer	Magnification total	Object field Ø in mm	Eyepieces	Position at magnification-changer	Magnification total	Object field Ø in mm
16×/15	13	12.8×	18.8	10×/20	0.8	8×	25
	16	16×	15		1	10×	20
	20	20×	12		1.25	12.5×	16
	25	25.6×	9.4		1.6	16×	12.5
	32	32×	7.5		2	20×	10
	40	40×	6		2.5	25×	8
	50	48×	5		3	30×	6.7
	56	56×	4.3		3.5	35×	5.7

EZ4 without eyepieces (10 447 199) + eyepieces 16×/16				EZ4 without eyepieces (10 447 199) + eyepieces 20×/12			
Eyepieces	Position at magnification-changer	Magnification total	Object field Ø in mm	Eyepieces	Position at magnification-changer	Magnification total	Object field Ø in mm
16×/16	0.8	12.8×	20	20×/12	0.8	16×	15
	1	16×	16		1	20×	12
	1.25	20×	12.8		1.25	25×	9.6
	1.6	25.6×	10		1.6	32×	7.5
	2	32×	8		2	40×	6
	2.5	40×	6.4		2.5	50×	4.8
	3	48×	5.3		3	60×	4
	3.5	56×	4.6		3.5	70×	3.4



Leica Stereomicroscope ES2

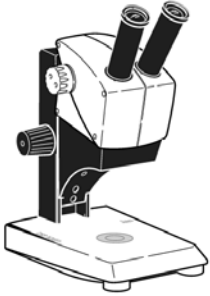


Leica Stereomicroscope EZ4

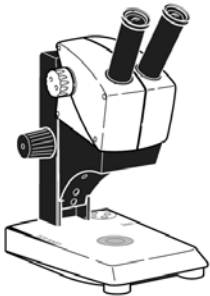


Leica Stereomicroscope EZ4 W

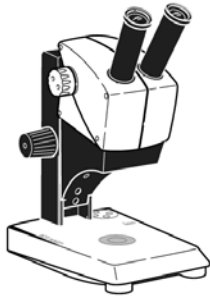
# Leica E Series Assembly – Diagram



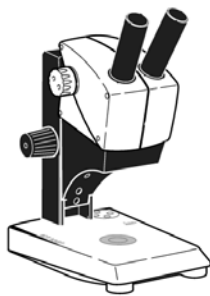
**Leica ES2 (10×)**  
10 447 202



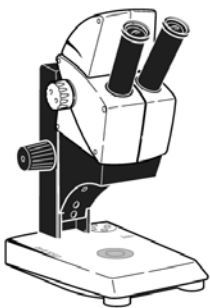
**Leica EZ4 (10×)**  
10 447 197



**Leica EZ4 (16×)**  
10 447 198



**Leica EZ4**  
10 447 199



**Leica EZ4 W**  
10 450 629



## Low eyepoint eyepieces:

Eyepieces, fixed:  
10×/20 (10 447 281)  
16×/16 (10 447 132)  
20×/12 (10 447 134)

Eyepieces, adjustable:  
10×/20 (10 447 282)  
16×/16 (10 447 133)  
20×/12 (10 447 135)

## High eyepoint eyepieces:

Eyepieces, fixed:  
10×/20B (10 447 278)  
16×/15B (10 447 138)

Eyepieces, adjustable:  
10×/20B (10 447 280)  
16×/15B (10 447 139)



# Leica E Series – Standard Delivery

## **E Series stereomicroscopes**

- 10 447 202 Leica ES2 with 10× eyepieces, 2 step stereomicroscope (3:1) 10× and 30× magnification, 60° eyetube angle, 100 mm working distance, high eyepoint eyepieces, integrated LED illumination for incident and transmitted light, power supply 100 – 240 V
- 10 447 197 Leica EZ4 with 10× eyepieces, 4.4:1 zoom ratio, magnification from 8 – 35×, 60° eyetube angle, 100 mm working distance, high eyepoint eyepieces, integrated LED illumination for incident and transmitted light, power supply 100 – 240 V
- 10 447 198 Leica EZ4 with 16× eyepieces, 4.4:1 zoom ratio, magnification from 12.8 – 56×, 60° eyetube angle, 100 mm working distance, high eyepoint eyepieces, integrated LED illumination for incident and transmitted light, power supply 100 – 240 V
- 10 447 199 Leica EZ4 without eyepieces 4.4:1 zoom ratio, 60° eyetube angle, 100 mm working distance, integrated LED illumination for incident and transmitted light, power supply 100 – 240 V
- 10 450 629 Leica EZ4 W with 10× eyepieces, 4.4:1 zoom ratio, magnification from 8 – 35×, 60° eyetube angle, 100 mm working distance, high eyepoint eyepieces, integrated CMOS camera 5.0 Megapixel, USB2, HDMI, WiFi, network, integrated LED illumination for incident and transmitted light, power supply 100 – 240 V
- 10 450 805 Wireless remote camera control for fine tuning the HD image and making additional camera settings when no computer is in use

## **Eyepieces for EZ4 with open tubes**

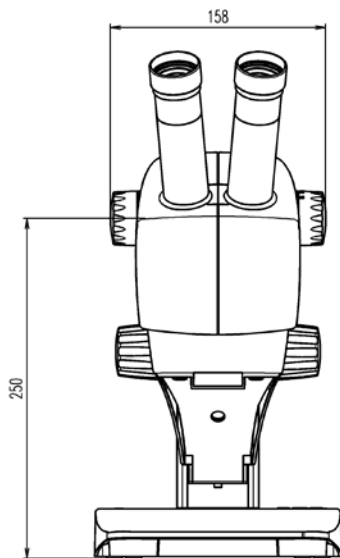
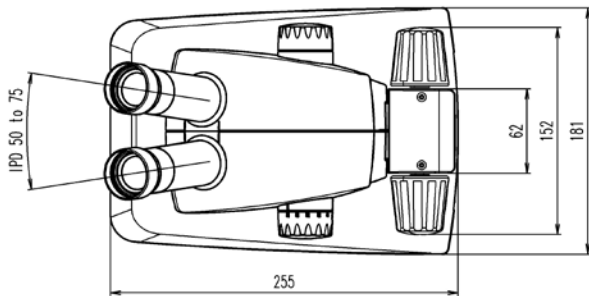
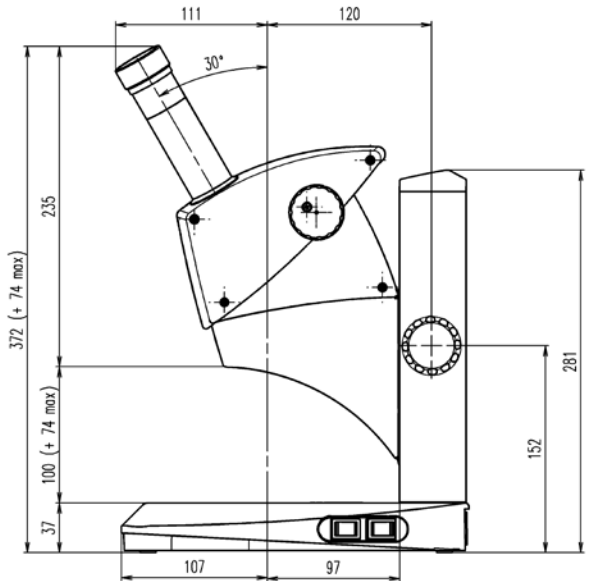
- 10 447 281 Eyepiece 10×/20, fixed, E Series
- 10 447 282 Eyepiece 10×/20, adjustable, E Series
- 10 447 132 Eyepiece 16×/16, fixed, S and E Series
- 10 447 133 Eyepiece 16×/16, adjustable, S and E Series
- 10 447 134 Eyepiece 20×/12, fixed, S and E Series
- 10 447 135 Eyepiece 20×/12, adjustable, S and E Series
- 10 447 278 Eyepiece 10×/20B, for spectacle wearers
- 10 447 280 Eyepiece 10×/20B, adjustable, for spectacle wearers
- 10 447 138 Eyepiece 16×/15B, for spectacle wearers
- 10 447 139 Eyepiece 16×/15B, adjustable, for spectacle wearers

## **Accessories for measurements with adjustable eyepieces**

- 10 446 447 Graticule 10 mm / 0.1 mm, S Series
- 10 446 448 Graticule 5 mm / 0.1 mm, S Series
- 10 446 449 Graticule 5 mm / 0.05 mm
- 10 446 450 Crosshair graticule
- 10 447 000 Graticule, 100 graduations / 0.002"
- 10 447 001 Graticule, 100 graduations / 0.001"
- 10 447 002 Graticule, 150 graduations / 0.0005"
- 10 310 345 Stage micrometer 50 mm, 0.1 / 0.01mm graduation
- 10 447 037 Stage micrometer 1", 0.001" graduation
- 10 447 477 Soft carrying case
- 10 447 496 Leica ETB (Educational Tool Box): educational CD rom, cleaning set, poster of an E Series stereomicroscope

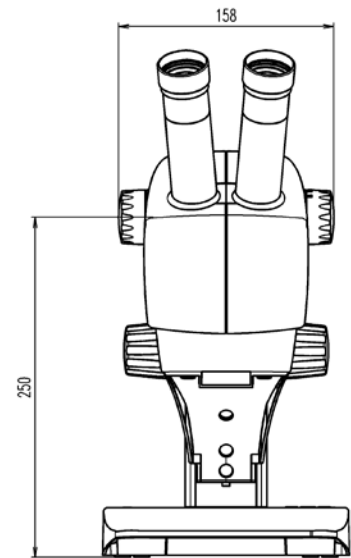
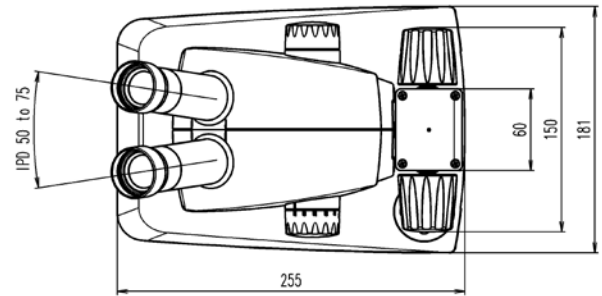
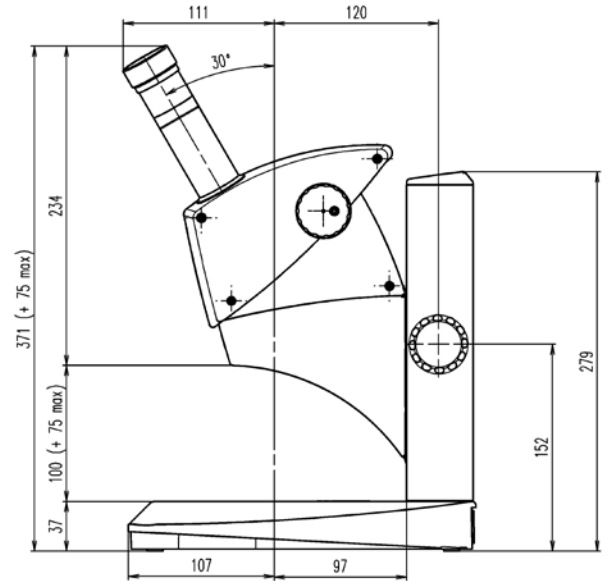
# Leica ES2 Dimensions

Measurements in mm



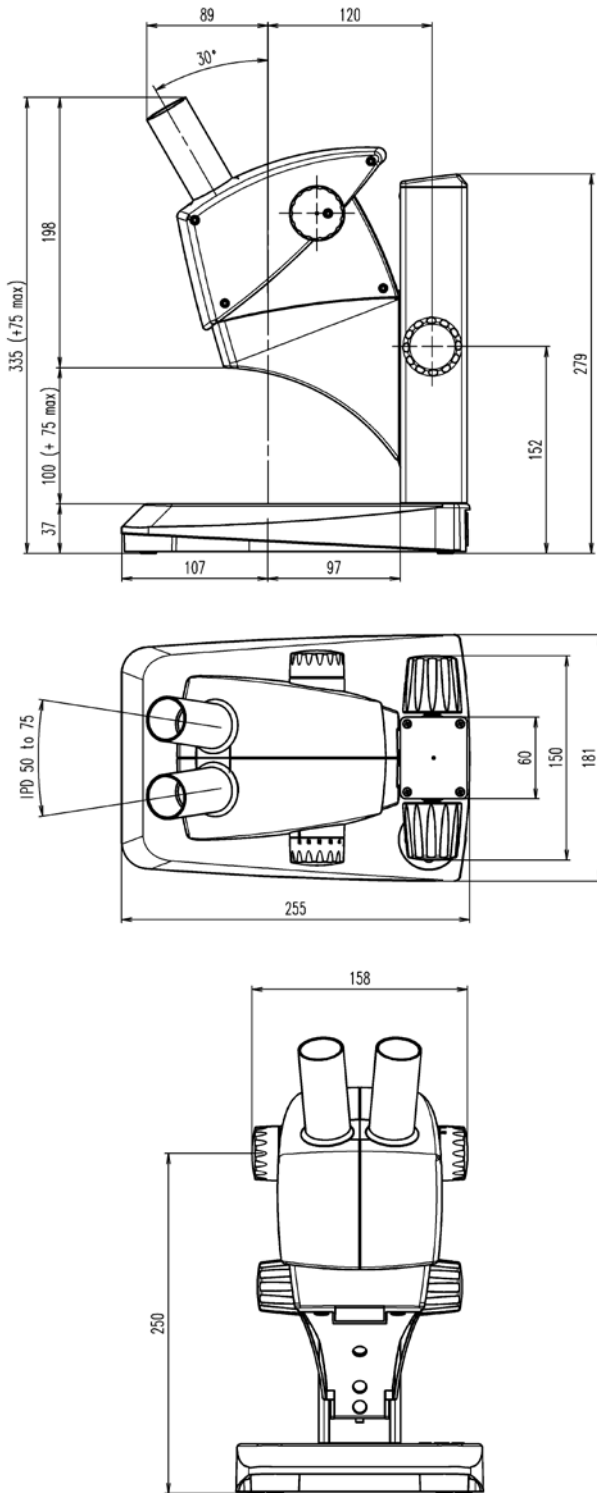
10 447 202 Leica ES2

# Leica EZ4 Dimensions



10 447 197 Leica EZ4 with 10× eyepieces  
10 447 198 Leica EZ4 with 16× eyepieces

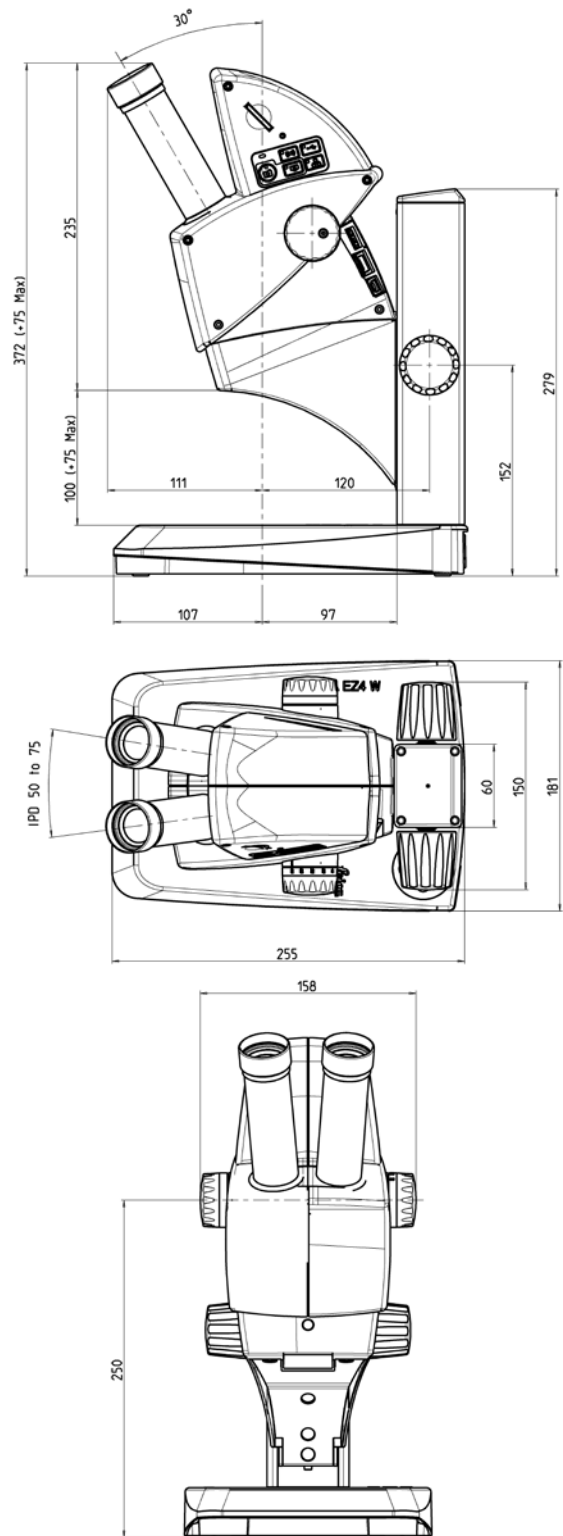
## Leica EZ4 Dimensions



10 447 199 Leica EZ4 without eyepieces

## Leica EZ4 W Dimensions

Measurements in mm



10 450 629 Leica EZ4 W (with 10× eyepieces and integrated digital WiFi HD camera)

The statement by Ernst Leitz in 1907, “*With the User, For the User,*” describes the fruitful collaboration with end users and driving force of innovation at Leica Microsystems. We have developed five brand values to live up to this tradition: Pioneering, High-end Quality, Team Spirit, Dedication to Science, and Continuous Improvement. For us, living up to these values means: **Living up to Life.**

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#### LIFE SCIENCE DIVISION

The Leica Microsystems Life Science Division supports the imaging needs of the scientific community with advanced innovation and technical expertise for the visualization, measurement, and analysis of microstructures. Our strong focus on understanding scientific applications puts Leica Microsystems’ customers at the leading edge of science.

#### INDUSTRY DIVISION

The Leica Microsystems Industry Division’s focus is to support customers’ pursuit of the highest quality end result. Leica Microsystems provide the best and most innovative imaging systems to see, measure, and analyze the microstructures in routine and research industrial applications, materials science, quality control, forensic science investigation, and educational applications.

#### MEDICAL DIVISION

The Leica Microsystems Medical Division’s focus is to partner with and support surgeons and their care of patients with the highest-quality, most innovative surgical microscope technology today and into the future.

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Brazil · São Paulo	+55	11 2764-2411	11 2764-2400
Canada · Concord/Ontario	+1	800 248 0123	847 405 0164
Denmark · Ballerup	+45	4454 0101	4454 0111
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Germany · Wetzlar	+49	64 41 29 40 00	64 41 29 41 55
India · Mumbai	+91	226 1880 200	226 1880 333
Italy · Milan	+39	02 574 861	02 574 03392
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Korea · Seoul	+82	2 514 65 43	2 514 65 48
Netherlands · Rijswijk	+31	70 4132 100	70 4132 109
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· Shanghai	+86	21 6039 6000	21 6387 6698
Portugal · Lisbon	+351	21 388 9112	21 385 4668
Singapore	+65	6550 5999	6564 5955
Spain · Barcelona	+34	93 494 95 30	93 494 95 32
Sweden · Kista	+46	8 625 45 45	8 625 45 10
Switzerland · Heerbrugg	+41	71 726 34 34	71 726 34 44
United Kingdom · Milton Keynes	+44	800 298 2344	1908 577640
USA · Buffalo Grove/Illinois	+1	800 248 0123	847 405 0164