

# A-Zoom<sup>®</sup>

Single-Objective  
Zoom Microscopes





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## Your Key to Photonic Innovation

Qioptiq (pronounced "Key-Optic") designs and manufactures photonic products and solutions that serve a wide range of markets and applications in the areas of industrial manufacturing, medical and life sciences, research and development, defense and aerospace.

### Recognized Quality

We are proud to be known for our high-quality standard components, products and instruments, our custom modules and assemblies, our leading-edge innovation, our precision manufacturing and our responsive global resourcing.

### Serving a Wide Range of Market Sectors

Our broad expertise across the full spectrum of industrial manufacturing makes us the perfect partner and supplier for a wide range of high-tech companies. Other customers appreciate our extensive experience in the medical and life science fields, offering leading edge photonic and electro-optic technology along side most any component an R&D laboratory might require for an experimental breadboard. Lastly, Qioptiq also offers an extensive array of modules, equipment and technology that continues to define state-of-the-art for defense and aerospace sectors.

### An Impressive Pedigree

Through a series of acquisitions, Qioptiq has an impressive history benefitting from having integrated the knowledge and experience of LINOS, Point Source, Spindler & Hoyer, Gsänger, Optem, Pilkington, and others. We are proud to be the home to the world-famous LINOS Catalog and online shop.

### Worldwide Presence

Qioptiq offers global resourcing and regional proximity with 11 facilities strategically located throughout Europe, Asia and North America. We stand ready to meet your optical and photonic requirements.





# A-Zoom

**Single-Objective Zooming Video Microscopes...  
Designed for Productivity,  
Engineered for Precision**

Originally developed to locate and inspect the finest electronic traces using even finer electronic probes in semiconductor and integrated circuit applications, A-Zoom Microscopes offer extended zoom ranges with numerical apertures capable of resolving feature geometry in the sub-micron range. The field-proven A-Zoom line offers streamlined operation and economy in the manual A-Zoom $\mu$ ® Micro Series, and programmable automated zoom video microscopy in the A-Zoom2® Series. Both offer a broad range of features and options to ensure the perfect brightfield imaging solution for most any micro inspection application.

The exclusive single-objective zoom optical design combines with precision optomechanics and Optem Long Working Distance Objectives to deliver extended magnification imaging with maximum working space in and around your subject. With ample working room for instruments, tooling and fixtures, A-Zoom reduces damage to delicate subjects due to incidental contact.

## Precision Micro Imaging for:

- Analytical Probing
- Micro Hole Arrays
- Mold Inspection
- Channel Milling
- Solder Bumps
- Materials Analysis
- Filter Inspection
- Particle Analysis
- Welds and Joints
- Micro Finishing
- Layer Passivation
- Laser Machining & Etching

### A-Zoom $\mu$ Micro

- Economical 7:1 manual zoom
- 2X optical amplifier extends imaging
- Ergonomic design maximizes throughput
- Eyepiece and video viewing options
- Compact integration and mounting

### A-Zoom2

- 10:1 or 40:1 Motorized models
- Programmable zoom, focus & illumination
- Internal camera with eyepiece options
- Laser-ready options for Infrared (1064nm), Visible-Green (532nm), Near-UV (355nm)



# A-Zoom $\mu$ Micro

## Manual Zoom Microscopes

Designed for streamlined operation and compact integration onto electronic probers, quality fixtures and inspection workstations, the A-Zoom $\mu$  Micro offers a high-value solution for precision inspection, machining and analysis without sacrificing features, function or performance.

The A-Zoom $\mu$  Micro features a zoom optical range capable of covering the limited magnifications of existing multi-objective microscopes and all magnifications in between. A variety of video and eyepiece options afford viewing flexibility to meet specific operator preference and ensure maximum probing and inspection productivity.

### On-Board LED Illumination

Adjustable 10-watt LED provides crisp contrast for both eyepiece and video viewing without the need for external light source.



### Heavy-Duty Focus Block

Heavy-duty focus block offers 50mm precision travel to establish fine-focus and provide a stable and streamlined mounting interface.

### Maximum Working Space

The unique single-objective design and compact lower housing combine to offer spacious 360° working access for specialized tooling, instruments and probe tips. This increased work space safeguards against accidental contact damage for delicate subjects and assists in maintaining environmental chamber integrity where cleanroom conditions are required. This design further eliminates cumbersome nose turret manipulation and subject repositioning.



### Optimized for 1/2" Cameras

Standard C-Mount ISO port provides camera flexibility to meet most any prober imaging requirement.

### Trinocular Head Options

A-Zoom $\mu$  Micro comes standard with a fixed trinoc head and 10X eyepieces, yielding 50/50 or 100% uni-directional, erect image transmission. Tilting Binocular eyepiece and camera-only head options are also available.

### Matching Fields

Achieve matching eyepiece and on-screen fields-of-view across the entire 7:1 zoom range when paired with 1/2-inch cameras.

### Ergonomic Design

All magnification adjustments are located along right side of instrument and can be easily adjusted with a single hand.

### Extended Magnification

Double your magnification range for greater viewing flexibility using the 2X optical amplifier.

### 7:1 Manual Zoom

Engage precision optomechanics with a smooth, graduated zoom dial for precision field-of-view adjustment across an expansive single-objective magnification range.

### Single-Objective Design

Optimized for use with Optem M-Plan APO Long-Working Distance Objectives to meet a range of magnification requirements. Optem Objectives further increase working room with a generous 95mm parfocal distance from objective shoulder to image plane and up to 34mm working distance from front lens. Optem M-Plan APO Objectives deliver exceptional field flatness with zero chromatic aberration.

Camera Port Configuration



Fixed Trinocular Head



Tilting Trinocular Head



## A-Zoom $\mu$ Micro

### Models and Options

Camera port ONLY 38mm ISO	58-04-00-000
Fixed Trinocular Head (38mm ISO port), 78mm eyepiece extender	58-01-00-000
Fixed Trinocular Head (38mm ISO port), 130mm eyepiece extender	58-01-25-000
Fixed Trinocular Head (38mm ISO port), 35mm widefield eyepiece extender*	58-01-50-000
Fixed Binocular Head, 78mm eyepiece extender	58-02-00-000
Fixed Binocular Head, 130mm eyepiece extender	58-02-25-000
Fixed Binocular Head, 35mm widefield eyepiece extender*	58-02-50-000
Tilting Trinocular Head, 127mm Erecting eyepiece extender	58-03-00-000
Tilting Binocular Head, 127mm Erecting eyepiece extender	58-03-25-000

Eyeiece extenders match the visual FOV to the eyepieces with the FOV of the image to the camera. \*The 35mm widefield eyepiece extender increases visual FOV by 1.5X.

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## A-Zoom $\mu$ Micro

### Performance Specifications

Long Working Distance Infinity-Corrected Objective	Working Distance	Visual Magnification	Visual Field-of-View ( $\varnothing$ mm)	Video Field-of-View (mm)	
				Low	High
Optem 2X M-Plan Apo	34mm	22X – 152X	10.1 – 1.44	6.1 x 8.1	– 0.87 x 1.15
Optem 5X M-Plan Apo	34mm	54X – 381X	4.0 – 0.58	2.4 x 3.2	– 0.35 x 0.46
Optem 10X M-Plan Apo	34mm	109X – 762X	2.0 – 0.29	1.2 x 1.6	– 0.17 x 0.23
Optem 20X M-Plan Apo	20mm	218X – 1525X	1.0 – 0.14	0.6 x 0.8	– 0.09 x 0.12
Optem 50X M-Plan Apo	13mm	545X – 3812X	0.4 – 0.06	0.24 x 0.32	– 0.03 x 0.05

Values shown assume 2X Optical Amplifier is not engaged. Camera FOV is calculated with recommended 1/2" sensor format.

## Optem

### Long Working Distance Objectives

Optem M-Plan APO, Infinity-Corrected	
• 2X / 0.055NA / 34mm WD	28-21-02-000
• 5X / 0.14NA / 34mm WD	28-21-05-000
• 10X / 0.30NA / 34mm WD	28-21-10-000
• 20X / 0.42NA / 20mm WD	28-21-11-000
• 50X / 0.55NA / 13mm WD	28-21-50-000



# A-Zoom2

## Automated Zoom Microscopes

The A-Zoom2 Series delivers programmable motorized zoom, illumination and focus function options to boost throughput and repeatability in higher-volume inspection applications. Select from 40:1 or 10:1 models to meet your specific optical magnification range requirements. A-Zoom2 Series further introduces laser-ready models for real-time micro machining, layer passivation and analytical forensics as needed.

A-Zoom2 features optical performance ranges that far surpass the fixed magnifications of existing multi-objective microscopes without cumbersome turret manipulation. The compact, single-objective design provides ample 360° working access around the subject for instruments, tooling and prober tips to ensure maximum throughput and productivity.

### 10X and 40X Motorized Zoom

Select from A-Zoom2 10X (10:1 zoom) or A-Zoom2 40X (40:1 zoom) Models capable of covering magnification ranges from 75 – 3000X when equipped with a single Optem 10X Objective.



### Heavy-Duty Focus Block

The A-Zoom HD focus block offers 50mm precision travel to establish fine-focus and provide a stable and streamlined mounting interface. Manual or motorized options

### Maximum Working Space

The unique single-objective design and compact lower housing combine to offer spacious 360° working access for specialized tooling, instruments and probe tips. This increased work space safeguards against accidental contact damage for delicate subjects and assists in maintaining environmental chamber integrity where cleanroom conditions are required. This design further eliminates cumbersome nose turret manipulation and subject repositioning.



### Programmable Control

Plug-and-run controller options available for zoom, focus and illumination functions.



### On-Board Camera

Integrated 1/2" CCD with S-video signal-out provides video imaging to match field-of-view through widefield eyepieces.

### Widefield Eyepieces

Optional 22mm Eyepieces with adjustable interocular distance for viewing flexibility and operator comfort.

### Laser-Ready Models

Laser-ready option available for IR (1064nm), Vis Green (532nm) and Near-UV (355nm) for micro-machining, layer passivation, circuit repair, test and R&D needs. Sturdy adapter arm protruding from the right side panel that accepts most major brand lasers.

### Illumination and Power in One

LampLink2 provides power and delivers complete control of intense, bright-white halogen illumination from one unit.



### Single-Objective Design

Select from a wide range of Optem Objectives to meet your specific magnification requirements. Optem Objectives further increase working room with a generous 95mm parfocal distance from objective shoulder to image plane and up to 34mm working distance. Optem High Resolution Objectives deliver outstanding NA for exacting detail at high magnifications and M-Plan APO Objectives deliver exceptional field flatness with zero chromatic aberration.

95mm

360°



## A-Zoom2

### Models and Options

10X Series	10X A-Zoom2 - Video only, Manual Focus Block, RS232 Digital Control	48-10-42-01	
	10X A-Zoom2 - Video only, Motorized Focus Block, RS232 Digital Control	48-10-52-01	
	10X A-Zoom2 - Video with Eyepieces, Motorized Focus Block, RS232 Digital Control	48-10-52-11	
	10X A-Zoom2 - Video with Eyepieces, Manual Focus Block, RS232 Digital Controls, Laser Ready	48-10-42-16	
	40X Series	40X A-Zoom2 - Video only, Manual Focus Block, RS232 Digital Control	48-40-42-01
		40X A-Zoom2 - Video with Eyepieces, Manual Focus Block, RS232 Digital Control	48-40-42-11
		40X A-Zoom2 - Video only, Motorized Focus Block, RS232 Digital Control	48-40-52-01
		40X A-Zoom2 - Video with Eyepieces, Motorized Focus Block, RS232 Digital Control	48-40-52-11
		40X A-Zoom2 - Video only, Manual Focus Block, RS232 Digital Controls, Laser Ready	48-40-42-06
		40X A-Zoom2 - Video with Eyepieces, Manual Focus Block, RS232 Digital Controls, Laser Ready	48-40-42-16
40X A-Zoom2 - Video with Eyepieces, Motorized Focus Block, RS232 Digital Controls, Laser Ready		48-40-52-16	

All A-Zoom2 model packages include LampLink2 power supply and fiberoptic illuminator. Stands as shown above, NOT included.

## A-Zoom2

### Performance Specifications

	Infinity-Corrected Objective	Working Distance	Visual Magnification	Visual Field-of-View (Ø mm)	Video Field-of-View (mm)	
10X Series	Optem 5X High Res	34mm	70X – 700X	3.4 – 0.34	2.1x2.8 – 0.21x0.28	
	Optem 10X High Res	19mm	140X – 1400X	1.7 – 0.17	1.0x1.3 – 0.10x0.13	
	Optem 20X High Res	13mm	280X – 2800X	0.9 – 0.09	0.5x0.7 – 0.05x0.07	
	Optem 2x M-Plan Apo	34mm	28X – 280X	9.0 – 0.9	5 x 7 – 0.5x0.7	
	Optem 5x M-Plan Apo	34mm	70X – 700X	3.4 – 0.34	2.1x2.8 – 0.21x0.28	
	Optem 10x M-Plan Apo	34mm	140X – 1400X	1.7 – 0.17	1.0x1.3 – 0.10x0.13	
	Optem 20x M-Plan Apo	20mm	280X – 2800X	0.9 – 0.09	0.5x0.7 – 0.05x0.07	
	Optem 50x M-Plan Apo	13mm	700X – 7000X	0.34 – 0.034	0.21x0.28 – 0.021x0.028	
	40X Series	Optem 5X High Res	34mm	37.5X – 1500X	6.4 – 0.16	3.7x5.0 – 0.09x0.12
		Optem 10X High Res	19mm	75X – 3000X	3.2 – 0.08	1.8x2.4 – 0.045x0.060
Optem 20X High Res		13mm	150X – 6000X	1.6 – 0.04	0.9x1.2 – 0.022x0.03	
Optem 2x M-Plan Apo		34mm	15X – 600X	16.0 – 0.4	9x12 – 0.22x0.30	
Optem 5x M-Plan Apo		34mm	37.5X – 1500X	6.4 – 0.16	3.7x5.0 – 0.09x0.12	
Optem 10x M-Plan Apo		34mm	75X – 3000X	3.2 – 0.08	1.8x2.4 – 0.045x0.060	
Optem 20x M-Plan Apo		20mm	150X – 6000X	1.6 – 0.04	0.9x1.2 – 0.022x0.030	
Optem 50x M-Plan Apo		13mm	375X – 15000X	0.64 – 0.016	0.37x0.50 – 0.009x0.012	

## Optem

### Long Working Distance Objectives



#### M-Plan APO, Infinity-Corrected

• 2X / 0.055NA / 34mm WD	28-21-02-000
• 5X / 0.14NA / 34mm WD	28-21-05-000
• 10X / 0.30NA / 34mm WD	28-21-10-000
• 20X / 0.42NA / 20mm WD	28-21-11-000
• 50X / 0.55NA / 13mm WD	28-21-50-000

#### High-Resolution, Infinity-Corrected

• 5X / 0.225NA / 34mm WD	28-20-44-000
• 10X / 0.45NA / 19mm WD	28-20-45-000
• 20X / 0.60NA / 13mm WD	28-20-46-000



## A-Zoom Single-Objective Zoom Microscopes...

The signature A-Zoom single-objective design couples with precision zoom optomechanics to offer extended magnification with unmatched space efficiency and working room in and around the subject.

Well established in analytical probing applications in micro-electronics and semiconductor manufacturing, the time-tested line of A-Zoom microscopes afford streamlined and compact integration onto a multitude of prober stations and quality inspection fixtures.

## Designed for Productivity, Engineered for Precision

For technical information contact:

**Qioptiq**

78 Schuyler Baldwin Drive  
Fairport, NY 14450, USA

Tel. 585.223.2370  
Fax 585.223.1999  
e-mail: [info@us.qioptiq.com](mailto:info@us.qioptiq.com)

