

AO series

Adaptive lens for fast focusing



NEW



KEY ADVANTAGES

Fast

The adaptive lens can change optical power in 1/100th of a second.

Simple

Just attach the adaptive lens to a fixed focal lens, connect the power supply and ethernet cable and start focusing.

Compact

The adaptive lens and driving electronics are integrated into a small housing that mounts to the front of your fixed focal length lens.

FULL RANGE OF COMPATIBLE FIXED FOCAL LENGTH LENSES		
	ENMP and ENHR series Megapixel and 5 Megapixel lenses	p. 92
FULL RANGE OF COMPATIBLE INDUSTRIAL CAMERAS		
	Area scan cameras	p. 180-185

The **AO series** is a focusing module which can be mounted in front of a fixed focal length lens to rapidly change focus.

The AO series allows the user to refocus the lens faster than mechanically moving the lens with traditional motorized solutions.

The built-in driver has been specifically developed to accurately control the piezoelectric elements.

A demo user interface with basic control functions is available via a web browser interface. The lens can also be fully controlled with a dedicated .dll library, downloadable from the Opto Engineering® website. The library includes an autofocus algorithm and a calibration tool to help users integrate the AO module into their product or application.

TECH TIPS

Optimum piezoelectric control

The vast experience in piezoelectric actuation at Dynamic Optics allowed us to optimize the electronics to precisely control the actuator for increased focus accuracy and repeatability.


Excellent optical performance

The lens paired with the AO module does not suffer from image degradation as the optical quality is not impacted by the module. The module can be used either horizontally or vertically since it is not affected by gravity.

Large aperture

The lens has 23 mm clear aperture, making it compatible with a wide range of fixed focal lenses without vignetting. Larger apertures can be developed on request.

Demo interface

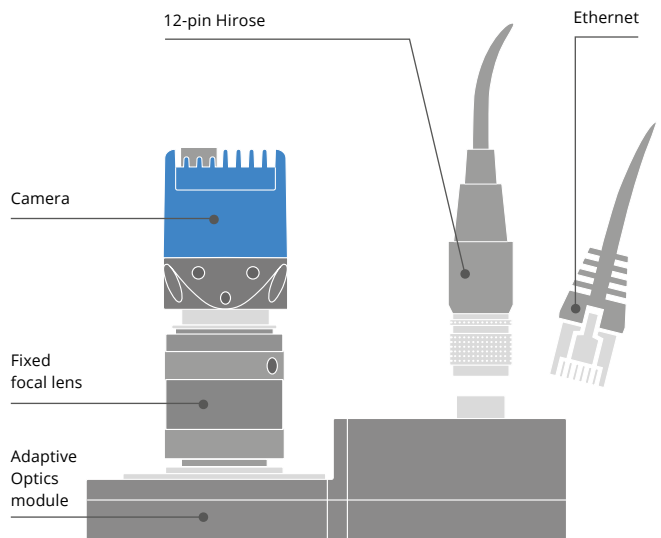


The demo browser interface can run on all of the most common browsers.

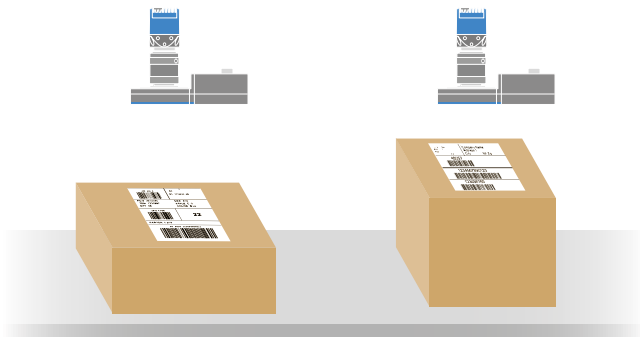
With the demo interface you can:

- Drive the focus in both directions.
- Tune the lens to obtain the best focus.
- Save up to 5 positions and loop between them.

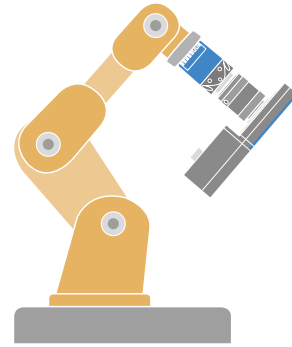
How to use



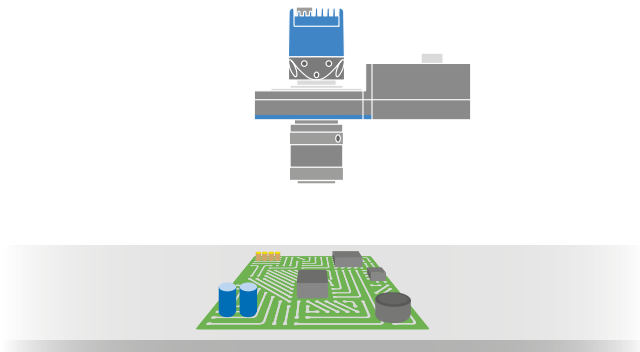
Application example



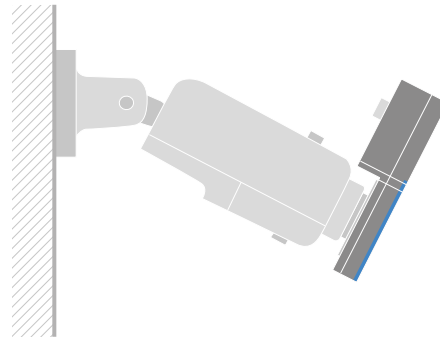
Barcode reader: the AO module allows the system to stay in focus and read the barcode regardless of the size of the box.



Robot head: the AO module can be mounted on a robot arm, allowing the system to dynamically achieve focus.



Macro inspection: the AO module can be used to focus on different planes in high magnification applications where depth of field is a limiting factor.



Surveillance: the AO module can be used to quickly focus over a wide range of distances.

Part number	Optical specs					Electrical specs		Communication		Dimensions			Accessories	
	Power		Clear aperture (mm)	Scan rate max (Hz)	Transmittance (%)	DC voltage (V)	Power consumption max (W)	Connector 1	Interfaces 2	Mount	Length (mm)	Width (mm)		Height (mm)
	min (D)	max (D)												
AOL0223A	0	+3,5	23	100	>90	24	5	RJ45, 12-pin Hirose	Ethernet, RS232, Analog control, Digital control, Ready	M30.5x0.5	116	63	27.7	CBGPI001, CBETH003, AO mechanical adaptors
AOL0223B	-3,5	0												

1 Standard industrial circular connector, for I/O and power connections.

2 Custom protocol, see manual for more information.

Compatibility Table

Focal length	Camera sensor
	2/3" 8.45 x 7.07 (mm x mm)
8 mm	Equivalent to 1/1.8" image circle
12 mm	Full frame
16 mm	Full frame
25 mm	Full frame
35 mm	Full frame
50 mm	Full frame
75 mm	Full frame

Other fixed focal lenses can be used.
Vignetting may occur depending on lens focal length, clear aperture, f-number and focusing position.

AO mechanical adaptors

AOLM27X05AR	Adapter ring to mount the AO module on a lens with M27x0.5 filter thread
AOLM305X05AR	Adapter ring to mount the AO module on a lens with M30.5x0.5 filter thread
AOLM375X05AR	Adapter ring to mount the AO module on a lens with M37.5x0.5 filter thread
AOLCM	Adapter ring to mount the AO module on a C-mount camera
AOLCF	Optional window with female C-mount thread to mount the AO module between a lens and a camera

All AO modules products are supplied with adaptors for M30.5x0.5 filter thread.
Different mechanical adaptors should be ordered separately.
Other mechanical adaptors can be ordered upon request.