

Acousto-Optic Beam Deflectors 266-390nm

Quartz, Ø3, Ø5, Ø7mm



DATASHEET

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Features

- Non-Mechanical High Reliability
- Accurate and Reproducible Position Control
- Fast Scan Speeds

Applications

- Micro Machining
- Inspection
- Via Drilling
- Graphic Imaging



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Rev 02/16/26

The AOBD Acousto-Optic Beam Deflectors offer non-mechanical, high-speed laser beam scanning up to 200 MHz, delivering precise position control with angular resolution in the nanoradian (nRad) range. The solid-state design ensures unmatched reliability and consistency, making these devices ideal for demanding applications requiring agile and accurate beam positioning. The AOBD operates by applying an RF signal to a phased array piezoelectric transducer, generating an acoustic wave inside the crystal. This wave forms a dynamic diffraction grating, which deflects an incoming laser beam at a specific angle when the Bragg condition is satisfied. By adjusting the RF driving frequency, the grating spacing changes, resulting in precise control of the diffraction angle. This mechanism enables random access beam positioning, continuous line scanning, and sequential point deflection with exceptional speed and accuracy. The AOBD series is specially optimized for UV wavelengths, supporting operation down to 266 nm. Available aperture include 3 mm, 5mm, and 7 mm, and they offer scan angles up to 5 mrad. Combined with our specially developed broadband RF drivers, the system supports advanced control methods such as frequency sweeping and chirping, enabling customers to quickly implement multi-functional scanning capabilities in a wide range of applications.

Specifications

Parameter		Min	Typical	Max	Unit
AO medium		Crystal quartz			
Acoustic mode		Longitudinal			
Wavelength		266		390	nm
Input polarization (to mounting plane)			90		°
Output polarization (to mounting plane)			90		°
Insertion loss			1		%
RF Frequency	266nm		210 ± 60		MHz
	355nm		170 ± 30		
RF power	266nm		20		W
	355nm		15		
Active aperture (Ø)	266nm		3		mm
	355nm		7		
Diffraction efficiency	266nm	40			%
	355nm	80			
Scan Angle	266nm		5.5		mrad
	355nm		3.7		
Input Impedance			50		Ω

Notes:

* Specifications subject to change.

Note: The specifications provided are for general applications with a cost-effective approach. If you need to narrow or expand the tolerance, coverage, limit, or qualifications, please [click this link](#):

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Acousto-Optic Beam Deflectors Quartz UV

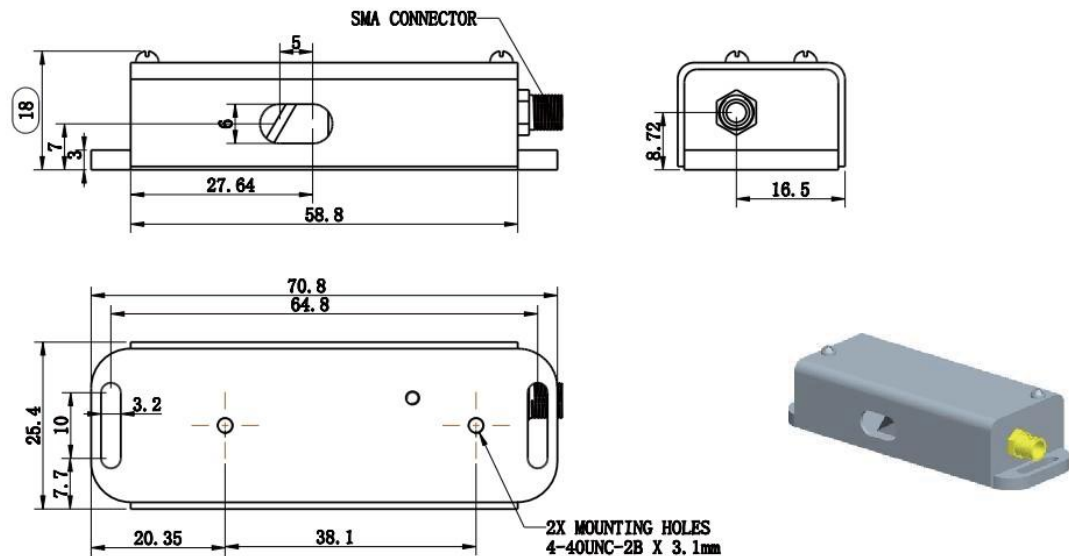
266nm, 355nm, Ø3, Ø5, Ø7mm



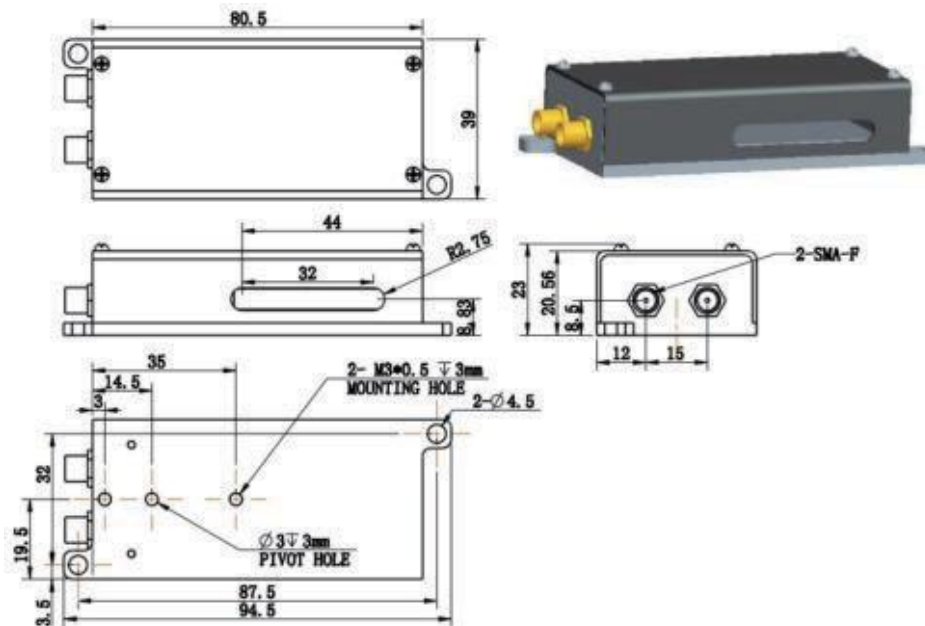
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Mechanical Dimensions (mm)

Package A



Package B



*Product dimensions may change without notice. This is sometimes required for non-standard specifications.

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Acousto-Optic Beam Deflectors Quartz UV

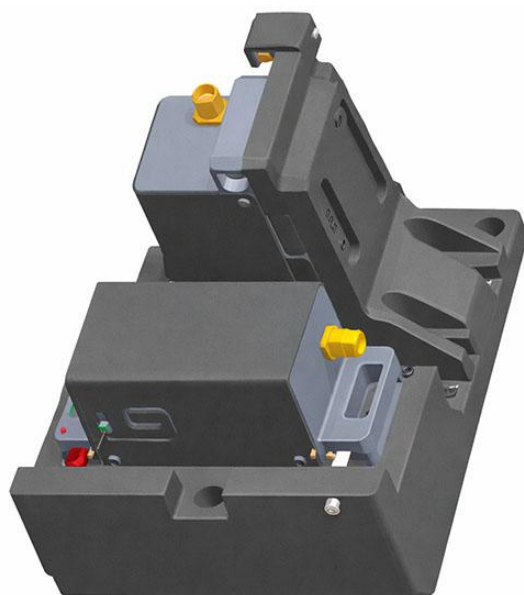
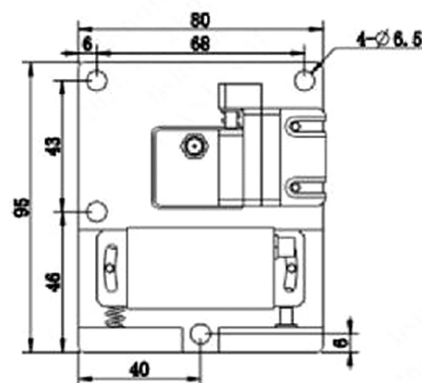
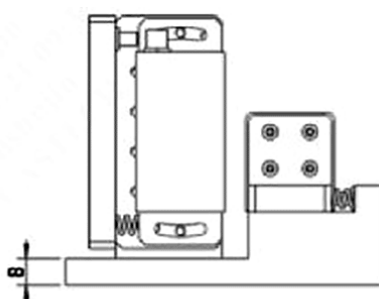
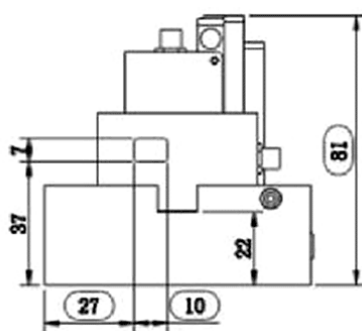
266nm, 355nm, Ø3, Ø5, Ø7mm



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Mechanical Dimensions (mm) 2D 3.0mm x 3.0mm aperture

Package C



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Ordering Information (Part Number)

	Q	☐	☐ ☐ ☐	☐	1	1	1
Prefix	Material	Direction	Wavelength	Driver			
AOBD-	Quartz =Q	1D = 1 2D = 2	266 nm = 266 355 nm = 355 395 nm = 395 Special = 000	Non = 1 Yes = 2			

Application Notes

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