

Acousto-Optic Deflectors 450-850nm

Tellurium Dioxide, 1D and 2D, Ø3 mm



DATASHEET

[Return to the Webpage](#)



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 visible from 450-850 nm. Available aperture include 3 mm, 5mm, and 7 mm, and they offer scan angles up to 5 mrad. Two AOBDs can be configured as a 2D beam scanner with a unified driver. 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.

Features

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

Applications

- Micro Machining
- Inspection
- Via Drilling
- Graphic Imaging

Specifications

Parameter	Min	Typical	Max	Unit
Interaction material	Tellurium dioxide			
Wavelength		450		nm
Damage threshold (10ns, 10Hz)		200		MW/cm ²
AR coating (per surface)		< 0.5		%
Transmission		> 99.0		%
Center frequency		180		MHz
RF bandwidth		60		MHz
Scan angle (@450 nm)		42.4		mrad
Active aperture		3.0		mm
Acoustic mode	Shear, Off Axis			
Polarization of incident light	Linear, horizontal to base			
Polarization of diffracted light	Linear, vertical to base			
Diffraction efficiency		> 70		%
RF power			1	W
Input Impedance		50		Ω
VSWR		< 3.0 : 1		
RF connector	SMA-F			
Cooling	Conduction-cooled			
Shell material	Aluminum alloy 6063			
Storage temperature	-20		+70	°C

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 [\[click this link\]](#):

Legal notices: All product information is believed to be accurate and is subject to change without notice. Information contained herein shall legally bind Agiltron only if it is specifically incorporated into the terms and conditions of a sales agreement. Some specific combinations of options may not be available. The user assumes all risks and liability whatsoever in connection with the use of a product or its application.

Rev 02/16/26



P +1 781-935-1200

E sales@agiltron.com

W www.agiltron.com

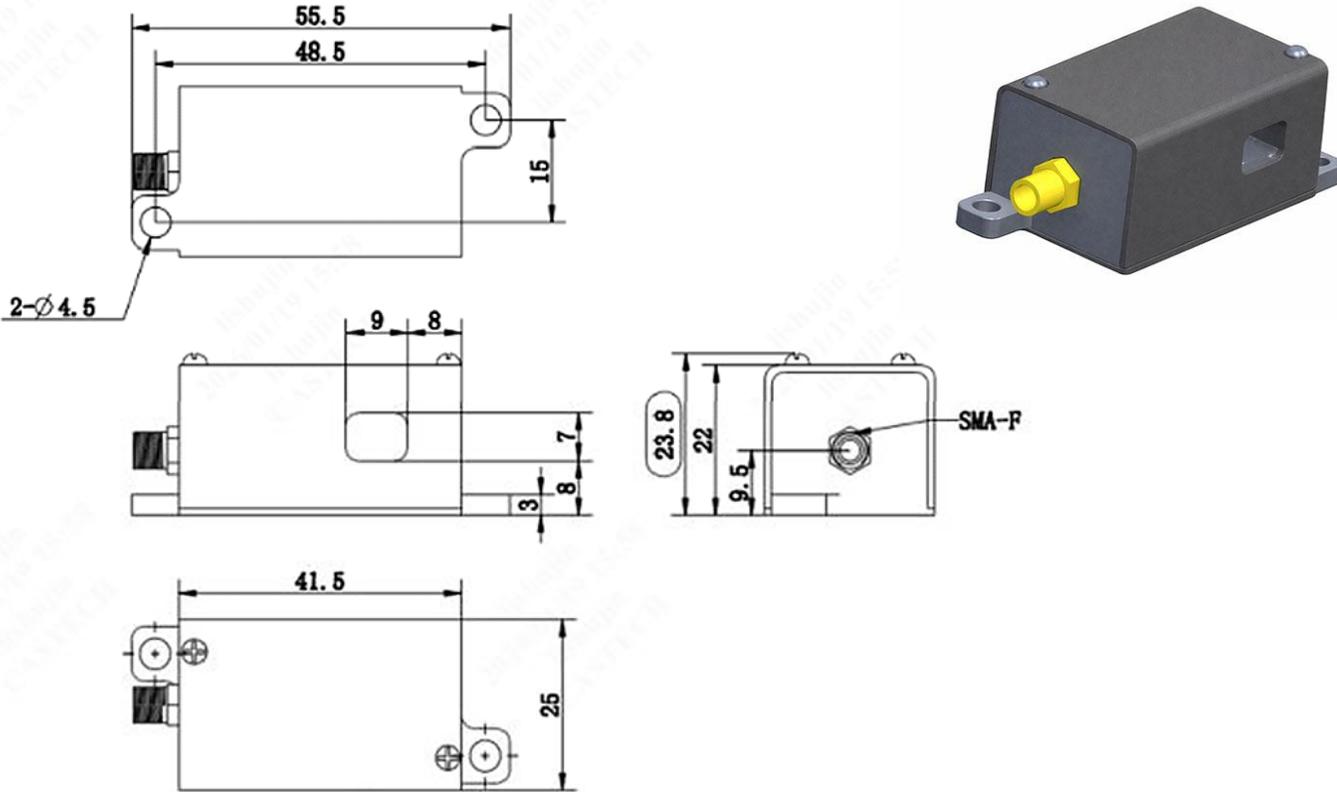
Acousto-Optic Deflectors 450-850nm

Tellurium Dioxide, 1D and 2D, Ø3 mm



DATASHEET

Mechanical Dimensions (mm)



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

Acousto-Optic Deflectors 450-850nm

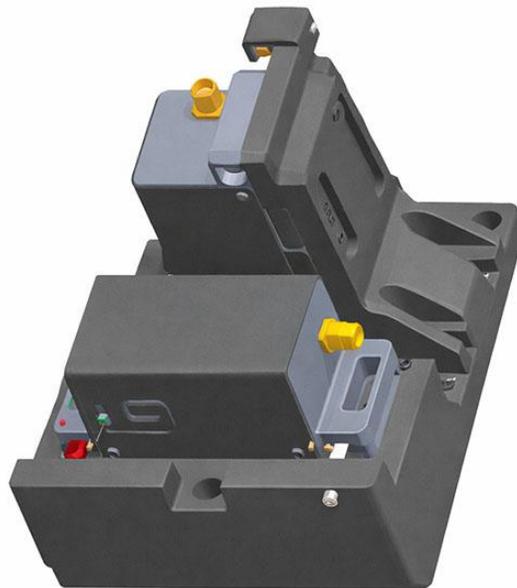
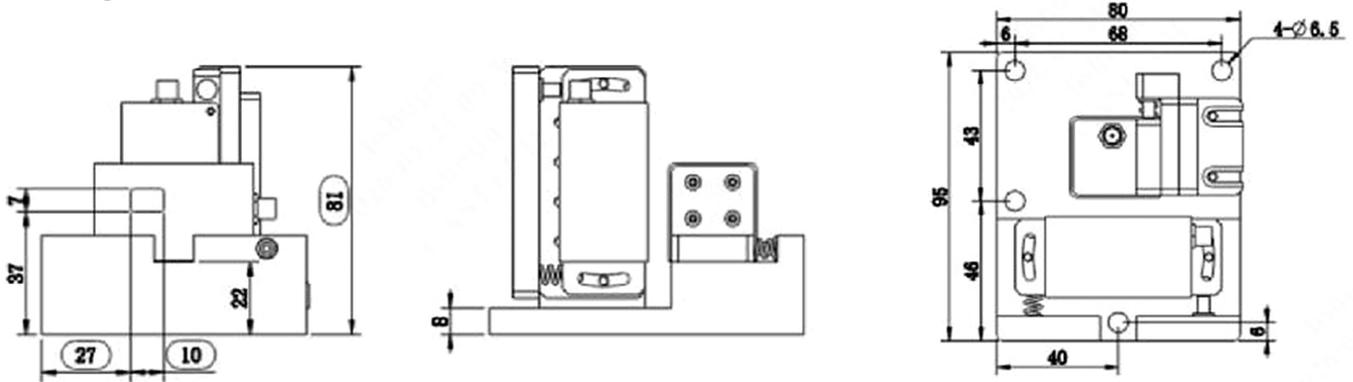
Tellurium Dioxide, 1D and 2D, Ø3 mm



DATASHEET

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

Package C



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

P +1 781-935-1200

E sales@agiltron.com

W www.agiltron.com

Acousto-Optic Deflectors 450-850nm

Tellurium Dioxide, 1D and 2D, Ø3 mm



DATASHEET

Ordering Information

Prefix	Material	Direction	Wavelength	Driver			
AOBD-	TeO2 = T	1D = 1 2D = 2	450 nm = 450 550 nm = 555 635 nm = 635 750 nm = 750 850 nm = 850 Special = 000	Non = 1 Yes = 2	1	1	1

Application Notes