

Acousto-Optic Modulator

UV & Visible Acousto-Optic Modulator

Precision Control Experts for Quantum Optics & Atomic Physics

- UV Specialization
- Low Frequency Shift
- High Efficiency
- Compact Design



One Platform Many Possibilities

Contact Us sales@venuslabtech.com

Get a Quote



Get Expert Advice
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Overview

Spectral Precision: From UV Trapping to Visible Interferometry

The VL-AOM-VIS Series comprises three core sub-categories:
397nm Broadband Series: Designed for 397nm±10nm UV lasers, offering center frequencies of 130MHz, 200MHz, and 300MHz with up to 60MHz 3dB bandwidth, ideal for cold atom experiments requiring rapid frequency tuning.

Visible Broadband Series: Targeting 532nm and 633nm lasers with modulation frequencies from 80-200MHz, widely used in laser displays and optical tweezers.

Low Frequency Shift Series: 20MHz/40MHz models designed for 633nm, utilizing acousto-optic interaction to generate minute frequency shifts, essential for heterodyne interferometry.

Key Applications

- **Quantum Optics & Cold Atom Physics :**The 397nm UV modulators are critical for cooling and trapping ions (e.g., Ca+, Yb+) in quantum computing and atomic clock research.
- **Heterodyne Interferometry :**Low-frequency shift models (20MHz/40MHz) introduce a stable reference frequency shift, enabling high-precision phase measurement in interferometers.
- **Laser Doppler Velocimetry :**Used to split laser beams and introduce frequency shifts to measure the velocity of fluids or moving surfaces with high accuracy.
- **Laser Microscopy & Tweezers :**Fast intensity modulation and beam deflection allow for precise control of trapping potentials and scanning in biological imaging.

Qualification

General Technical Specifications

Technical Parameter	Specification Data
Interaction Material	TeO ₂ (Tellurium Dioxide) or Fused Silica
Static Transmission	95%
Extinction Ratio	> 1000:1
Input Impedance	50 (Nominal)
VSWR	< 1.3:1
RF Connector	SMA-Female (Standard)
Cooling Method	Conduction Cooling

Selection Chart

Series A: 397nm UV Broadband Modulators

Model	Wave (nm)	Center Freq (MHz)	Bandwidth (MHz)	Aperture (mm)	Rise Time (ns/mm)	DE (%)	Power (W)	Package
VL-AOM-130-397-B40	397±10	130	40	1.0	120	80	<5	QP1
VL-AOM-200-397-B50	397±10	200	50	0.5	160	80	<1	TA
VL-AOM-300-397-B60	397±10	300	60	0.2	-	80	-	TA

Series B: Visible Broadband Modulators

Model	Wave (nm)	Center Freq (MHz)	Bandwidth (MHz)	Aperture (mm)	Rise Time (ns/mm)	DE (%)	Power (W)	Package
VL-AOM-80-532-B20	500-600	80	20	1.5	-	80	<1	TA
VL-AOM-110-532-B50	500-600	110	50	1.0	160	80	<2	TA
VL-AOM-200-633-B40	600-700	200	40	0.5	-	75	<1	TA

Series C: Low Frequency Shift Modulators

Model	Wave (nm)	Center Freq (MHz)	Separation Angle (mrad)	Aperture (mm)	Rise Time (µs/mm)	DE (%)	Power (W)	Package
VL-AOM-20-633	633	20	18.55	1.0	1.0	85	0.2	PA
VL-AOM-40-633	633	40	37.1	2.0	1.0	85	-	PA

Service & Support

We are dedicated to delivering exceptional optoelectronic solutions to every client. From precision manufacturing and secure delivery to full-lifecycle technical support, we are here to ensure a seamless and reliable experience at every step.

1. Warranty Policy

Quality First, Worry-Free Operation

Warranty Period: We offer a **two-year** warranty service for all of our core optoelectronic products, effective from the date of shipment.

Coverage: We provide free repair or replacement services for malfunctions caused by material defects or workmanship errors under normal operating conditions.

Rapid Response: Upon receiving a warranty claim, we guarantee to initiate the assessment process within **24 hours** to minimize your equipment downtime.

2. Technical Support

Expert Team, Full-Process Guidance

Technical Consultation: Our team of senior optical engineers provides **24/7 online support** to assist with installation, commissioning, optical path alignment, and parameter optimization.

Scheduled Maintenance: We offer full-lifecycle maintenance recommendations, including firmware upgrades, optical component cleaning guidelines, and precision calibration services.

Training Services: We provide customized remote or on-site operational and safety training to ensure your team can operate the equipment efficiently and safely.

3. Logistics & Delivery

Precision Packaging, Global Reach

Professional Packaging: Given the fragile nature of optical instruments, we utilize industrial-grade shockproof, anti-static, and moisture-proof vacuum packaging to ensure zero damage during transit.

Logistics Partners: We partner with top-tier global logistics providers (**DHL / FedEx / UPS / SF Express**) to offer reliable shipping with real-time tracking.

Shipping Insurance: All shipments are fully insured to eliminate logistics risks.

4. Compliance & Certification

Strict Standards, Total Compliance

Quality Certification: Our manufacturing process is **ISO 9001 certified**, and our products comply with international standards such as **CE and RoHS**.

Export Compliance: "Committed to environmental responsibility, all our products comply with **RoHS 2.0** and **REACH standards**, ensuring safety and global compliance."

Explore Series

Model	Rise Time (ns/mm)	Center Freq (MHz)	Power (W)	DE (%)	Wave (nm)	Package
VL-AOM-200-397-B50	160	200	<1	80	397±10	TA
VL-AOM-20-633	1.0	20	0.2	85	633	PA

 Get in touch with our team to explore configurations, request a quote, or learn more about customized solutions tailored to your needs.

Let us help you move science forward—faster and smarter.

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