



L3HARRIS[®]
FAST. FORWARD.

MODEL H-401 ACOUSTO-OPTIC MODULATOR (AOM)

Radio frequency (RF) phase modulation capable AOM for optical wavefronts

The L3Harris Model H-401 AOM represents a significant departure from conventional AOM technology. By changing only the phase of the RF source waveform to modulate optical intensity, the H-401 AOM assures constant input power is always applied to the device regardless of data rate conditions. As a result, transient thermal conditions that occur with conventional AO drive techniques are largely eliminated, and beam-pointing stability is significantly improved.

The H-401 AOM focuses light from a coherent optical source to a suitable beam waist within the optical medium, which is composed of low-loss, ultraviolet-grade, fused silica. The light is proportionally directed into a primary intense diffraction order at an angle that depends on the frequency of the applied RF source waveform. Advanced coherent transducer array technology is employed in conjunction with precise digital drive technology to allow the H-401 AOM to be operated in RF phase modulation mode or in a conventional on/off pulse RF mode for extended on/off contrast where beam-pointing stability is not critical. An H-400 AOM series compatible driver and interface cable are required for use with the H-401 AOM.

PERFORMANCE PARAMETERS

PARAMETER	SPECIFICATION
Unless otherwise noted, all specifications are at 364 nm wavelength	
Minimum on/off contrast ratio	30 dB
Nominal center frequency (fc)	100 MHz
Deflection bandwidth	85-115 MHz
Total deflection angle	1.83 mrad
Minimum diffraction efficiency	>80% @ fc, typical 88-90%
Optical beam diameter	1 mm
Optical wavelength	257-532 nm
Optical material	Fused silica



APPLICATIONS

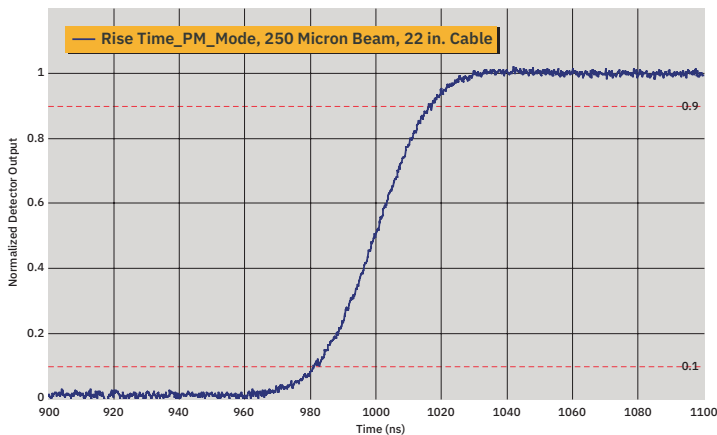
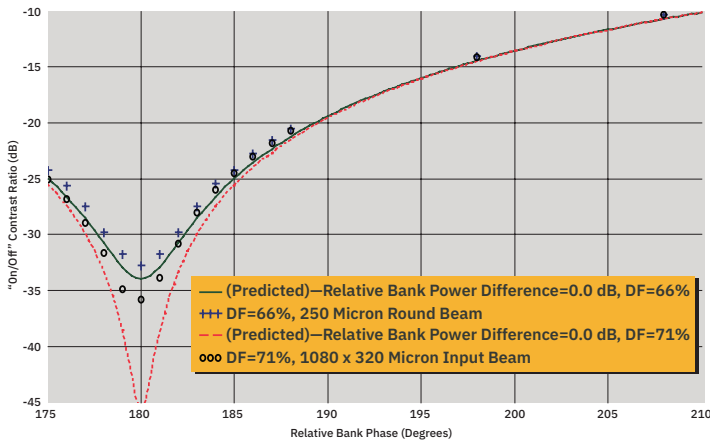
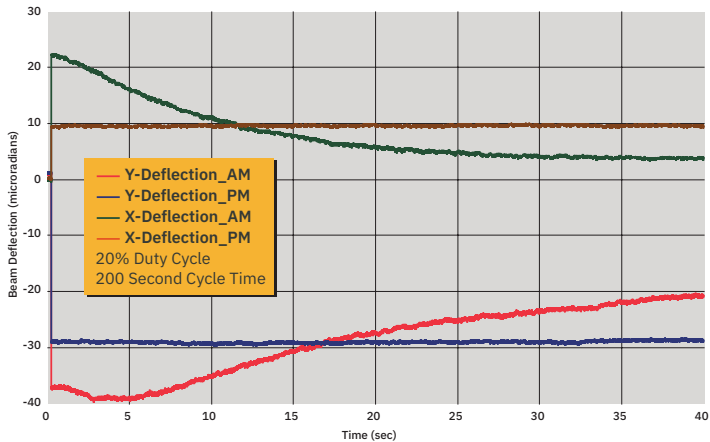
- > Optical modulation in ultraviolet (UV) and visible systems requiring the ultimate in beam-pointing stability
- > Predeflection, modulation, pointing adjustment and micromachining in UV laser systems

HIGHLIGHTS

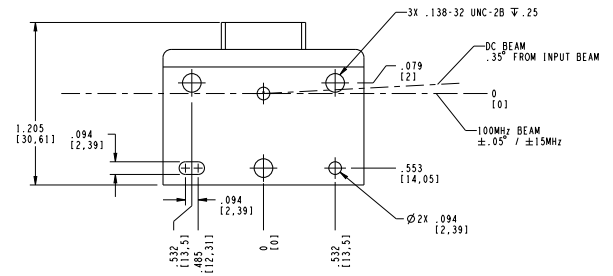
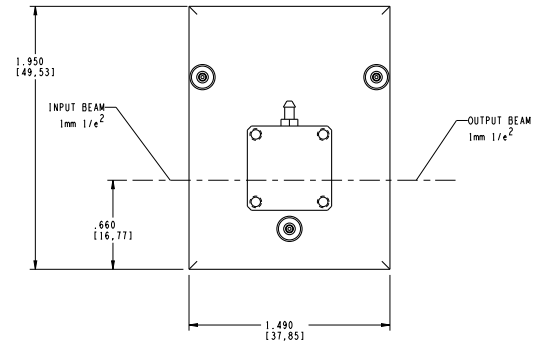
- > Employs advanced coherent transducer array technology
- > Achieves excellent performance through use of high-frequency, bulk wave transducers and specialized fabrication techniques
- > Assures high reliability with high-vacuum application of alloy-bonded transducers and low-loss, ultrahard, multilayer, UV-qualified antireflective coatings

TYPICAL PERFORMANCE AT 532 NM USING H-401D DRIVER

The following plots show measured and/or simulated performance for the H-401 when used with an H-400 AOM series compatible driver. See specifications for guaranteed performance characteristics and applicable wavelength.



MECHANICAL CONFIGURATION



Part Ordering Configuration

H401-SI-WL-CF-MC-R

H-400 series AOM model number

Material - SI for SiO₂

Wavelength - 355 nm nominally

R for ROHS compliant

PM - Phase modulation capable
AM - Standard amplitude modulation only capable

Center frequency - 100 MHz

H401-SI-355-100-AM-R is the standard configuration. Please contact L3Harris for additional configurations. Requires H-400 series compatible driver and cable. Specifications subject to change without notice.

For additional information, email Acousto-Optics@L3Harris.com or visit www.L3Harris.com/Acousto-Optics.

Model H-401 Acousto-Optic Modulator

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L3Harris Technologies is the Trusted Disruptor in the defense industry. With customers' mission-critical needs always in mind, our 50,000 employees deliver end-to-end technology solutions connecting the space, air, land, sea and cyber domains in the interest of national security.



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