



L3HARRIS[®]
FAST. FORWARD.

MODEL H-411 ACOUSTO-OPTIC MODULATOR (AOM)

Radio frequency (RF) phase modulation for optical wavefronts

The L3Harris Model H-411 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-411 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 AOM drive techniques are largely eliminated, and beam-pointing stability is significantly improved.

The H-411 AOM focuses light from a coherent optical source to a suitable beam waist within the optical medium, which is composed of low-loss, optical-grade tellurium dioxide crystal. 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, employed with precise digital drive technology, allows the H-411 AOM to be operated in either the RF phase modulation mode or a conventional on/off pulse RF mode for extended on/off contrast where beam-pointing stability is not critical. An L3Harris H-400 series compatible driver and interface cable are required for operation.

PERFORMANCE PARAMETERS

PARAMETER	SPECIFICATION
Unless otherwise noted, all specifications are at 532 nm wavelength	
Minimum on/off contrast ratio	30 dB
Nominal center frequency (fc)	80 MHz
Deflection bandwidth	65-95 MHz
Total deflection angle	3.8 mrad
Minimum diffraction efficiency	>80% @ fc
Optical beam diameter	1 mm
Minimum rise time	45 ns (max) 0.25 mm (H)
Optical wavelength	488 nm–800 nm
Optical material	Tellurium dioxide



APPLICATIONS

- > Optical modulation in visible and near-infrared (NIR) systems requiring the ultimate in beam-pointing stability
- > Predeflection, modulation, pointing adjustment and micro-machining in visible and NIR 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 due to high-vacuum application of alloy-bonded transducers and low-loss, ultrahard, multilayer, ultraviolet-qualified antireflective coatings

