brimrose

ROBUST . RELIABLE . ACCURATE

Free Space
Acousto-Optic Modulators

KEY FEATURES

- Compact Integrated Design
- Wide Spectral Wavelength Range
- Low RF Power Consumption
- Fast Switching Speed
- High Bandwidth
- High Diffraction Efficiency
- Good Temperature Stability
- Custom Configurations – "Our Specialty"

APPLICATIONS

- TTL/Digital Amplitude Modulation
- Analog Amplitude Modulation
- Photo Processing
- Laser Displays
- Micro Machining
- Pulse Picking
- OEM Designs

Free Space Acousto-Optic Modulators
CUSTOM BUILT (OUR SPECIALTY)

The Brimrose free space Acousto-Optic Modulator (AOM) is used to control laser beam intensity, frequency modulation, frequency shifting, control pulses, switching time, and more. The AOMs are offered with conduction and water cooled enclosures. TE cooled enclosures are available upon request.

Brimrose offers AOMs in the wavelength range from the ultraviolet to LWIR regions for low and high optical power applications. Brimrose AOMs cover the frequency ranges from just a few MHz up to 3.5 GHz.

A large variety of supporting RF electronics in lab enclosures or OEM versions are offered by Brimrose. These include fixed or variable frequency RF Drivers as well as PC-controlled high performance RF Frequency Synthesizers. The RF Drivers are provided with either analog amplitude modulation, TTL, or a combination of both, depending upon application requirements.

Brimrose offers a large variety of **RF drivers** compatible with our AO Modulators. A typical AO RF driver consists of an RF oscillator, amplitude modulation scheme and RF amplifier. Changing the RF power level will vary the intensity of the transmitted light.

Brimrose Corporation of America

Free Space Acousto-Optic Modulator Specifications

Model #	Spectral Range (nm)	Rise Time (ns)	Active Aperture (mm)	Modulation Bandwidth (MHz)	Diffraction Efficiency* (%)
TEM-85-2	380-1600	280	2.0	2	80
TEM-85-10	380-1600	55	1.0	10	80
TEM-110-25	380-1600	22	0.5	25	80
TEM-200-50	380-1600	10	0.3	50	70
TEM-400-100	380-1600	5.5	0.075	100	50
TEM-800-200	380-1600	3	0.05	200	35
AMM-27-2	1000-2500	300	1	1.8	>80
AMM-80-4	1000-2500	160	1	4	>80
AMM-100-8	1000-2500	68	0.3	8	>80
FQM-80-2	200-1300	195	1.6	2.8	70
FQM-80-20	200-1300	30	1	18	70
FQM-200-40	200-1300	14	0.3	40	70
GEM-40-4	2000-11,000	125	1.5	5	70
GPM-200-50	600-1600	11	0.3	50	>75
GPM-400-100	600-1600	5.1	0.1	108	>65
GPM-800-200	600-1600	2.6	0.05	217	>40
GPM-1600-400	600-1600	1.4	0.025	400	>25
IPM-200-26	1000-1600	21	0.3	26	60
IPM-400-100	1000-1600	5	0.075	100	50

* Diffraction efficiency may vary depending on the wavelength of operation.

The Free Space AOM models shown above represent some examples of our fabrication capabilities. In addition, other wavelengths, frequencies or configurations are available.

Fixed Frequency Driver Specifications

Driver Model #	FFA-XX-B1-FY	FFA-XX-B2-FY
Frequency (MHz)	XX MHz (compatible with the AO Device)	
Frequency Control	Quartz crystal referenced phase locked loop	
Frequency Accuracy (%)	0.015	
Harmonic Content (dBc)	≤ - 20	
Frequency Stability	0.0015% minimum after 15 minute warm-up	
Output Power	Power is optimized for peak efficiency with the supplied AO device.	
Output Protection	Power amplifiers used will tolerate an infinite V.S.W.R. without damage. Rated power is available only when a proper RF load is connected.	
Rise/Fall Time	To match AO Modulator requirements	
Modulation Type	Analog amplitude modulation	TTL compatible
Modulation Rate	To match AO Modulator requirements	
Modulation Input	50 Ω; 0-1 V	330 Ω; 0-5 V
Operating Power	90-240 VAC, 50-60 Hz, 55 Watts max.	
Enclosure	The unit will be packaged in a 190 mm (7.5 inch) wide by 100 mm (4 inch) high by 220 mm (8.75 inch) deep instrument case. The rear panel heat sink increases the depth to 240 mm (9.75 inches) maximum. The size is exclusive of connectors. A detachable AC line cord and RF cable are provided.	
Environmental	Nominal Laboratory Conditions: The maximum temperature is +35° C. The unit is not sealed against moisture or condensing humidity.	

OEM packaging is also available.

In addition to the standard product shown, customer configurations are available for specialized applications.