

# MCQ110-A2-VIS

AO MODULATOR/SHIFTER



## Product Overview

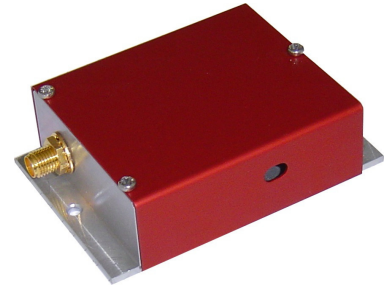
These modulators have been specially designed for applications for which TeO<sub>2</sub> cannot be used. Their large aperture allows user to combine the laser beam without additional optics. They cover the VIS range up to 650nm. Suitable for DPSS 532 nm or AR + lasers.

They can also be use as fixed frequency shifters @ 110 MHz, as well as variable frequency shifters or deflectors with a frequency range up to 110 +/- 15MHz

## Features

- High laser power
- Linear polarization
- Large aperture
- High diffraction efficiency

Access to your operating manual



TECHNICAL DATA SHEET 2014

## Technical Specifications

Parameter	Specification
Material-Acoustic mode-Velocity	Crystal QUARTZ - 5740 m/s
Optical Wavelength range ( AR coated)	458-650 nm
Transmission	>95%
Input / Output Polarization	Linear perpendicular to baseplate
Active Aperture	2 x 2 mm <sup>2</sup>
Carrier Frequency / Frequency shift	+/- 110 MHz
Separation Angle (0-1)	10.2 mrd @ 532 NM
Static Extinction Ratio	Nom 30 dB
Rise / Fall time	115 ns / mm
Diffraction Efficiency	>85%, Nom 90 % with TEM00 laser beam
Analog Amplitude modulation bandwidth (-3 dB)	8 MHz @ 0.5 mm beam diameter
Max optical power density	> 100 W/mm <sup>2</sup>
Input impedance	Nom 50 Ω
V.S.W.R.	Nom < 1.2:1
RF Power / Connector	≤ 5 W / SMA
Size / Weight	(LxHxh) 72 x 49.6 x 22 mm <sup>3</sup> / 150 g IN PRO 233
Operating Temperature	+10 to +40 Non condensing
Storage Temperature	-40 to +50 Non condensing

## On request

VARIABLE FREQUENCY SHIFT

110 +/- 15 MHz

Diffraction efficiency: >70%

Rise Time ( $T_r$ ) is beam diameter ( $\Phi$ ) sensitive:

$$T_r = 0.66 \frac{\Phi}{V}$$

Amplitude modulation bandwidth ( $F_{-3dB}$ ) is rise time ( $T_r$ ) sensitive:

$$F_{-3dB} = \frac{0.48}{T_r}$$

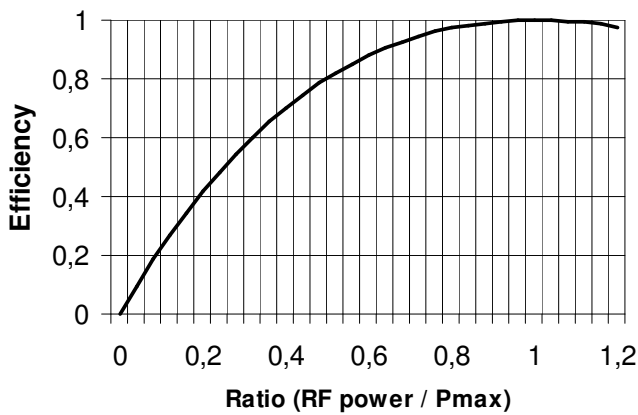
Separation angle ( $\Delta\theta$ ) is wavelength ( $\lambda$ ) sensitive:

$$\Delta\theta = \frac{\lambda F}{V}$$

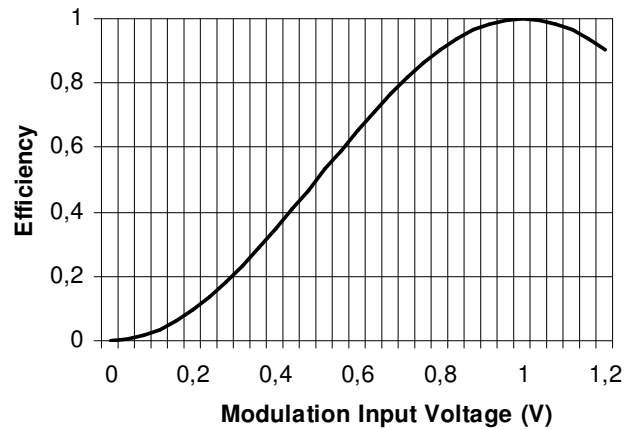
RF power ( $P$ ) is wavelength ( $\lambda$ ) sensitive:

$$\frac{P_1}{P_2} = \frac{\lambda_1^2}{\lambda_2^2}$$

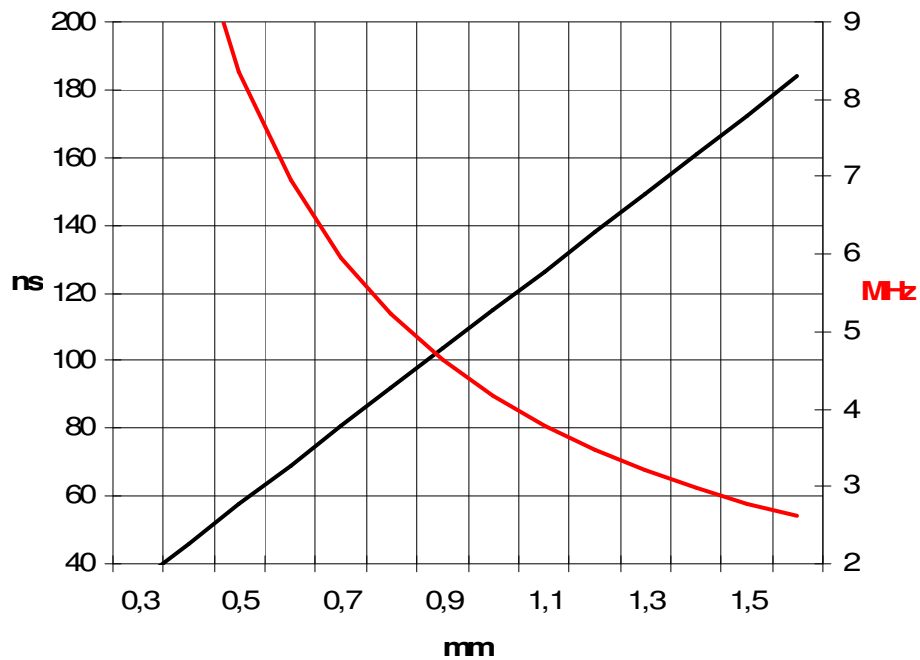
Relative Efficiency versus RF power



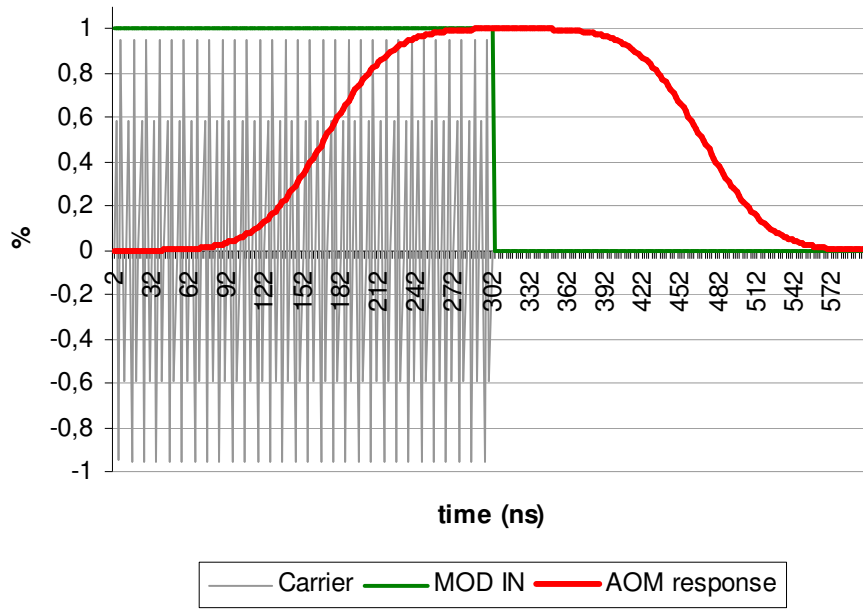
AO relative Efficiency vs driver MOD IN



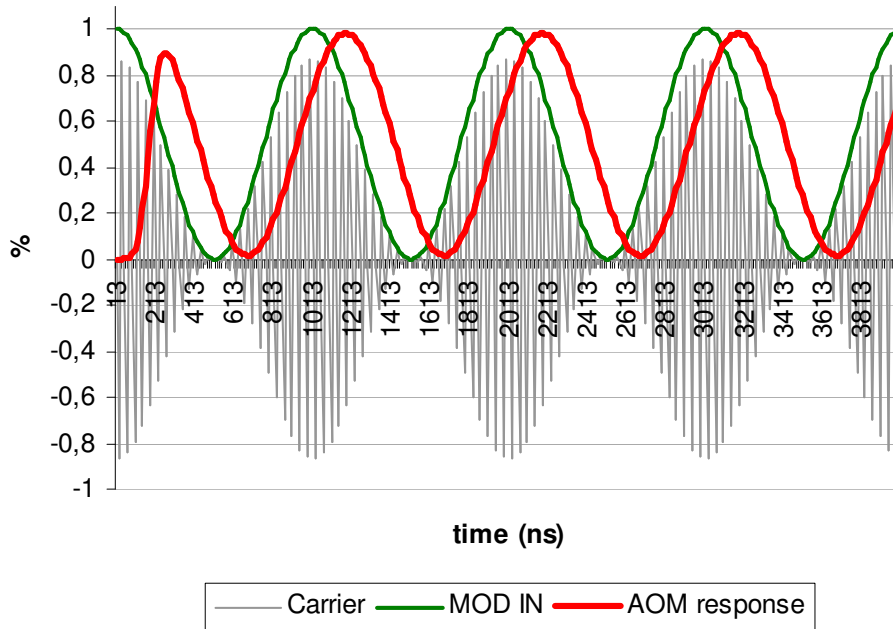
Rise Time (black) / Analog Modulation BW (-3dB) vs Beam diameter



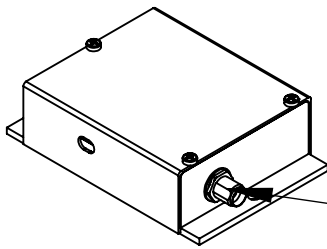
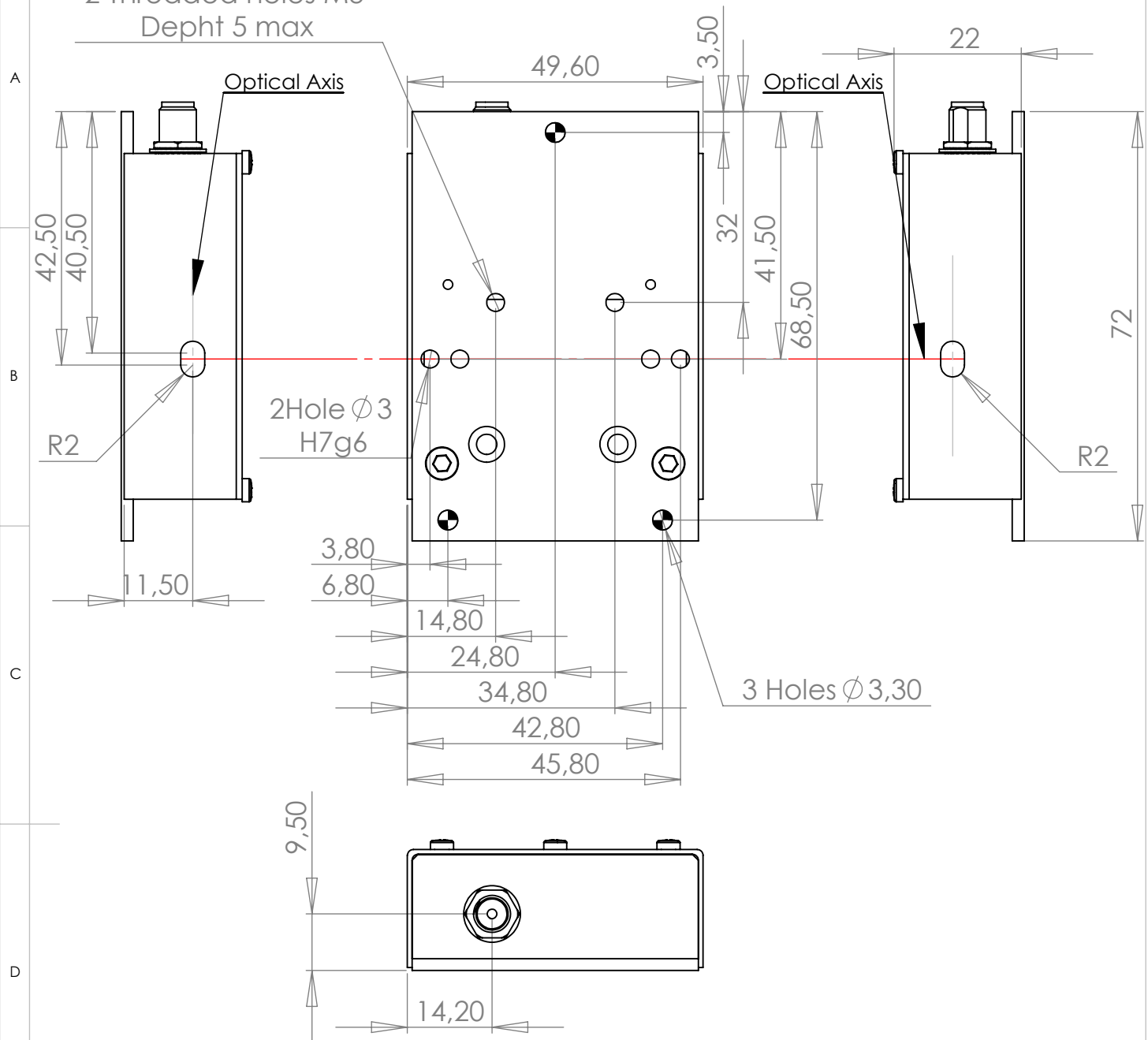
### Relative Efficiency / AOM temporal response



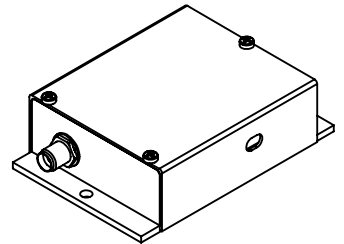
### Relative Efficiency / AOM temporal response (1MHz)



2 Threaded holes M3  
Depth 5 max



SMA Connector  
Input



E	B	28/02/12	G.M	Rajout cotation oblong.
	A	24/02/09	E.V	Plan initial / Initial Drawing
	Indice Index	Date	Auteur Author	Modifications
F	Conception Design	E.V		PLAN D'INTERFACE / OUTLINE DRAWING
	Vérification Checking			
	Tolérance Tolerance	ISO 2768mK		Référence / Reference <b>IN-PRO-233</b>
	Echelle Scale	1:1		
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