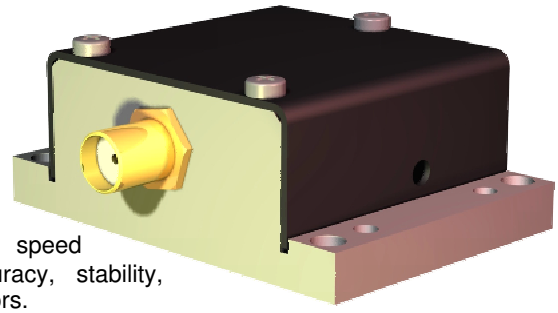
MT200 Fast AO Modulator/Shifter

TeO2 modulator for 400-1100 nm lasers



• High speed • Linear or random Polar • Printing

These modulators have been specially designed for high speed printing and facsimile applications, for which high accuracy, stability, repeatibility, high extinction ratio and low noise are the key factors.

They can also be used as fixed frequency shifters @200 Mhz, as well as variable frequency shifters with a frequency range up to 200 +/- 50 MHz.
With an adapted frequency range, user will be able to operate this device as a high speed low resolution deflector.

Specifications

Material-Acoustic mode	TeO2 [L]
Acoustic Velocity	V=4200 m/s
Optical Wavelength range	*LVIS :* 400-442 nm *VIS:* 450-700 nm *IR:* 700-1100 nm *1064 nm:* 980-1100 nm
Transmission	*LVIS/VIS/IR:* > 95 % *1064 nm:* 98% @1064nm
Optical Input / Output polarizations	Linear
Aperture	0.5 x 2 mm² (option for 1064 nm 0.2 x 1 mm²)
Carrier frequency / Frequency shift	200 MHz
Separation angle	25.3 mrd @532 nm 50.7 mrd @1064 nm
Diffraction efficiency (with TEM00 beam, M² ≤ 1.1)	*LVIS:* 85 % @300 µm, 75 % @50 µm *VIS:* 85 % @300 µm, 75 % @50 µm *IR:* 85 % @300 µm, 65 % @50 µm *1064 nm:* 70 % @300 µm, 60 % @100 µm *1064 nm :* 80 % @100 µm, 75 % @64 µm ->*@0.2 x 1 mm²*
Rise time	160 ns/mm (min 8 ns)
Amplitude modulation bandwidth	> 60 MHz (-3 dB, @50µm)
Static extinction ratio	> 2000/1
Max optical power density	LVIS : 0.5 W / mm², VIS : 5 W / mm², IR : > 10 W / mm²
Input impedance	Nom 50 Ω
V.S.W.R.	Nom < 1.5/1
RF Power	*LVIS/VIS:* ≤ 1.3 Watts *IR/1064 nm:* ≤ 2.2 Watts
Connector	SMA
Size / Weight	(Lxlxh) 47x 33 x 17.8 mm³ / 50 g
Operating Temperature	10 to 40 °C

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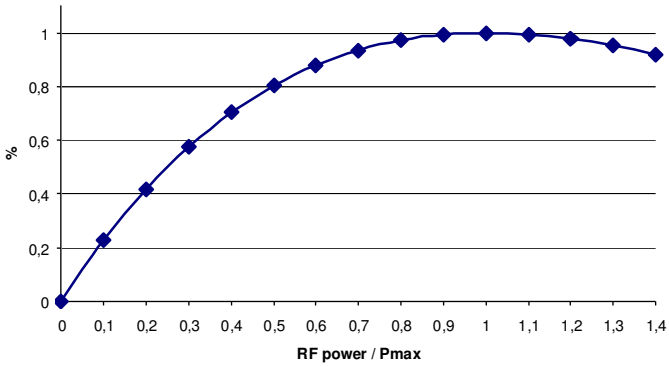
→ Separation angle (Δθ) is wavelength (λ) sensitive:

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

→ RF power (P) is wavelength (λ) sensitive:

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

Relative Diffraction Efficiency vs RF Power



OPTION

Frequency range 200+/-50MHz
Nominal efficiency over 200+/-50MHz > 50% (VIS, @800nm)

MT200-Ax-zz

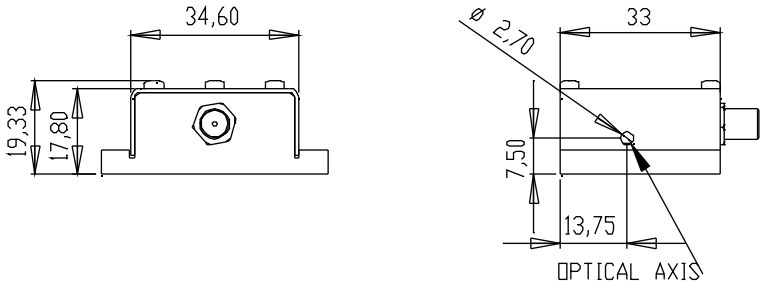
X = 0.5 (aperture, mm) or **0.2**

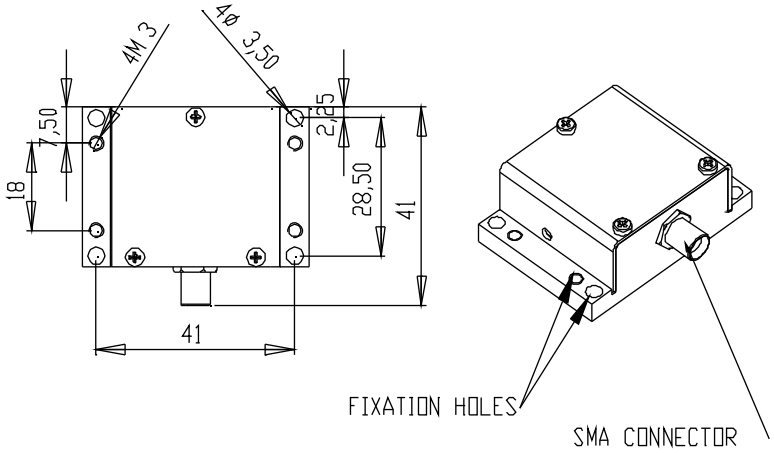
Y = frequency range (MHz) if any

ZZ = LVIS (400-442 nm), **VIS** (450-700 nm), **IR** (700-1100 nm), **@1064nm**

Outline Drawing

sizes in mm





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