

MT80-NIR60-Fio-xx MT110-NIR20-Fio-xx MT200-NIR10-Fio-xx MT250-NIR6-Fio-xx

AO FIBRE PIGTAILED MODULATORS/SHIFTERS
for 780-870 nm (800 nm)

Product Overview

These fibre pigtailed devices are optimized for a single wavelength within their range of operation [780-870] which must be specified on order.

They can operate for intensity modulation, fixed or variable frequency shifting, pulse picking or q-switching.

AA offers a complete range with different carrier frequencies (80, 110, 200, 250 MHz) and different rise/fall times (60, 20, 10, 6 ns) in order to fit most of the applications. Available with PM or SM fibres, low power version or high power version up to 2W depending on models.



Features

- Polarization Maintaining or Single Mode fibre
- FC/APC
- Positive frequency shift (negative on request)
- High extinction ratio

Access to your operating manual



TECHNICAL DATA SHEET 2015

Technical Specifications

Parameters	MT80-NIR60-Fio-xx	MT110-NIR20-Fio-xx	MT200-NIR10-Fio-xx	MT250-NIR6-Fio-xx
Material-Acoustic mode-Velocity	TeO ₂ - [L] - 4200 m/s			
Optical Wavelength range	780 to 870, AR coated			
IL, Insertion Losses	Nom 2 dB, < 3 dB	Nom 2.5 dB, < 3.5 dB,	Nom 3 dB, < 5 dB	Nom 4 dB, <6 dB
Input / Output Polarization	Linear (PM fibres), Random (SM fibres)			
PDL, Polarization Dependence Losses	< 0.5 dB			
Carrier frequency / Frequency shift	+80 MHz	+110 MHz	+200 MHz	+250 MHz
Static Extinction Ratio	> 45 dB, nom 50 dB			
Fibre type (SM / PM)	HI780 or PM850			
Jacket type	HYTREL 900 µm			
Fibre connectors	FC/APC			
Pigtail length	1 meter (IN/OUT)			
Rise/Fall time	60 ns	20 ns	10 ns	6 ns
Analog modulation BW (-3dB)	8 MHz	24 MHz	48 MHz	80 MHz
Max Input laser power (CW)	0.5 W or 2 W	0.5 W or 2 W	0.5 W	0.2 W
Input impedance	Nom 50 Ω			
V.S.W.R.	Nom < 1.2/1			
RF Power / Connector	< 2 W / SMA			
Size / Weight	(Lxlxh) 89 x 46.6 x 32.5 mm ³ / 250 g IN PRO 334			
Operating Temperature	+10 to +40°C, Non condensing			
Storage Temperature	-40 to +50°C, Non condensing			

Options / On request

FIBER JACKET	☒ PVC 3 mm	☒ Stainless steel 3 mm
FIBER CONNECTOR	☒ Super FC/PC	☒ SMA
PIGTAIL LENGTH	☒ 2 m	☒ Other
FREQUENCY SHIFT	☒ « - » Negative shift	☒ Variable frequency shift

Rise Time (Tr) is beam diameter (Φ) sensitive:

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

Insertion Loss (IL) is the amount of launched light lost within the Acousto-Optic Modulator (AOM). It is defined as the ratio of the input optical power over the output optical power.

The value of IL indicated in datasheet includes optical transmission through the crystal, diffraction efficiency and coupling losses. Losses at FC connectors are not included.

Polarization dependent loss (PDL) is when the insertion loss of a signal differs between the two different states of polarization. Polarization Dependent Loss is a measure of the peak-to-peak difference in Transmission of the AOM with respect to all possible states of polarizations. It is defined as the ratio between the maximum and minimum transmission power with respect to all possible axes of polarization.

The PDL of the acousto-optic devices is mainly due to the polarization dependency of the diffraction efficiency.

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

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

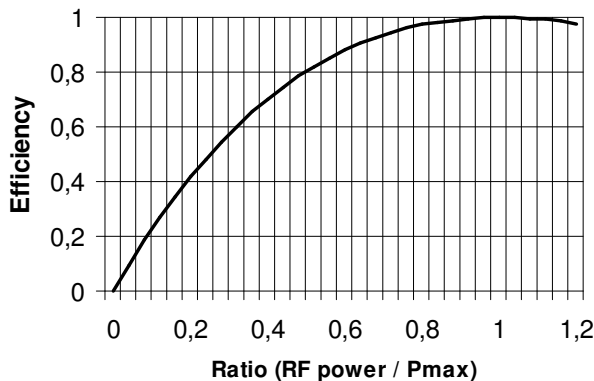
RF power (P) is wavelength (λ) sensitive:

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

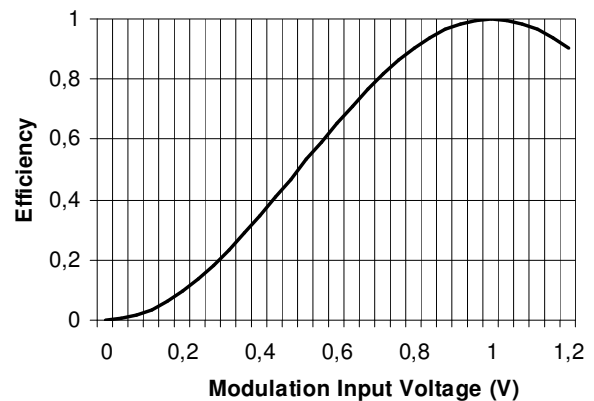
PMD (Polarization Mode Dispersion) is the differential arrival time of the different polarization components of an input light pulse, transmitted by the AOM. This light pulse can always be decomposed into pairs of orthogonal polarization modes. These polarization modes propagate at different speeds according to a slow and fast axis induced by the birefringence of the AOM.

Second Order PMD: The second order PMD describes how polarization induced delay, varies with wavelength. It provides the indication of the wavelength dependency of the PMD.

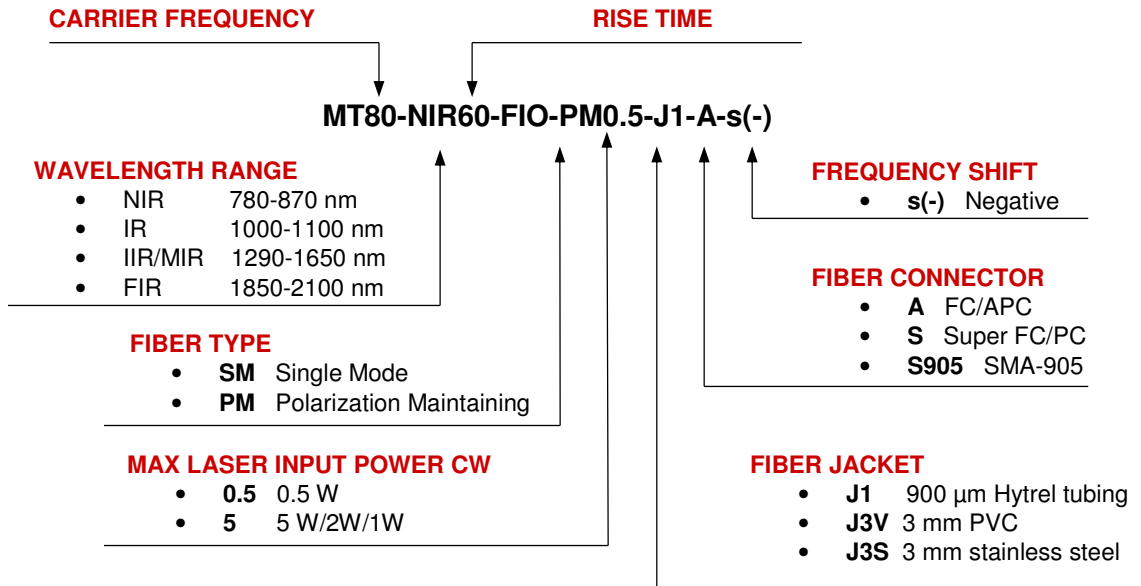
Relative Efficiency versus RF power



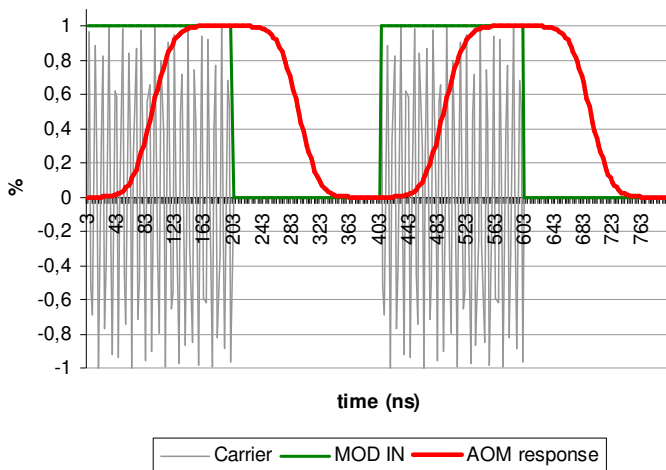
AO relative Efficiency vs driver MOD IN



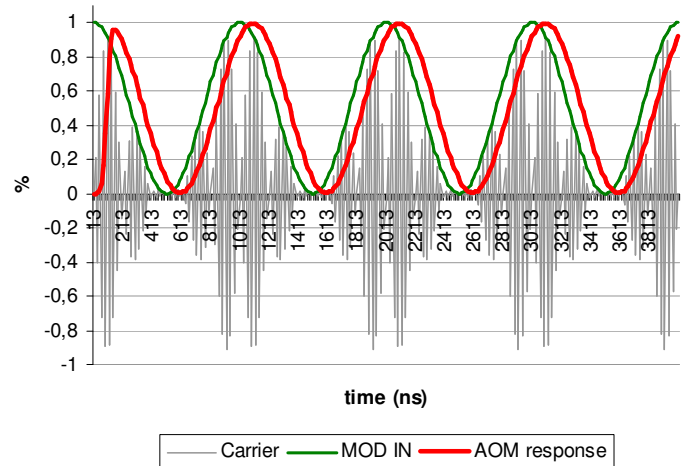
How to determine your model

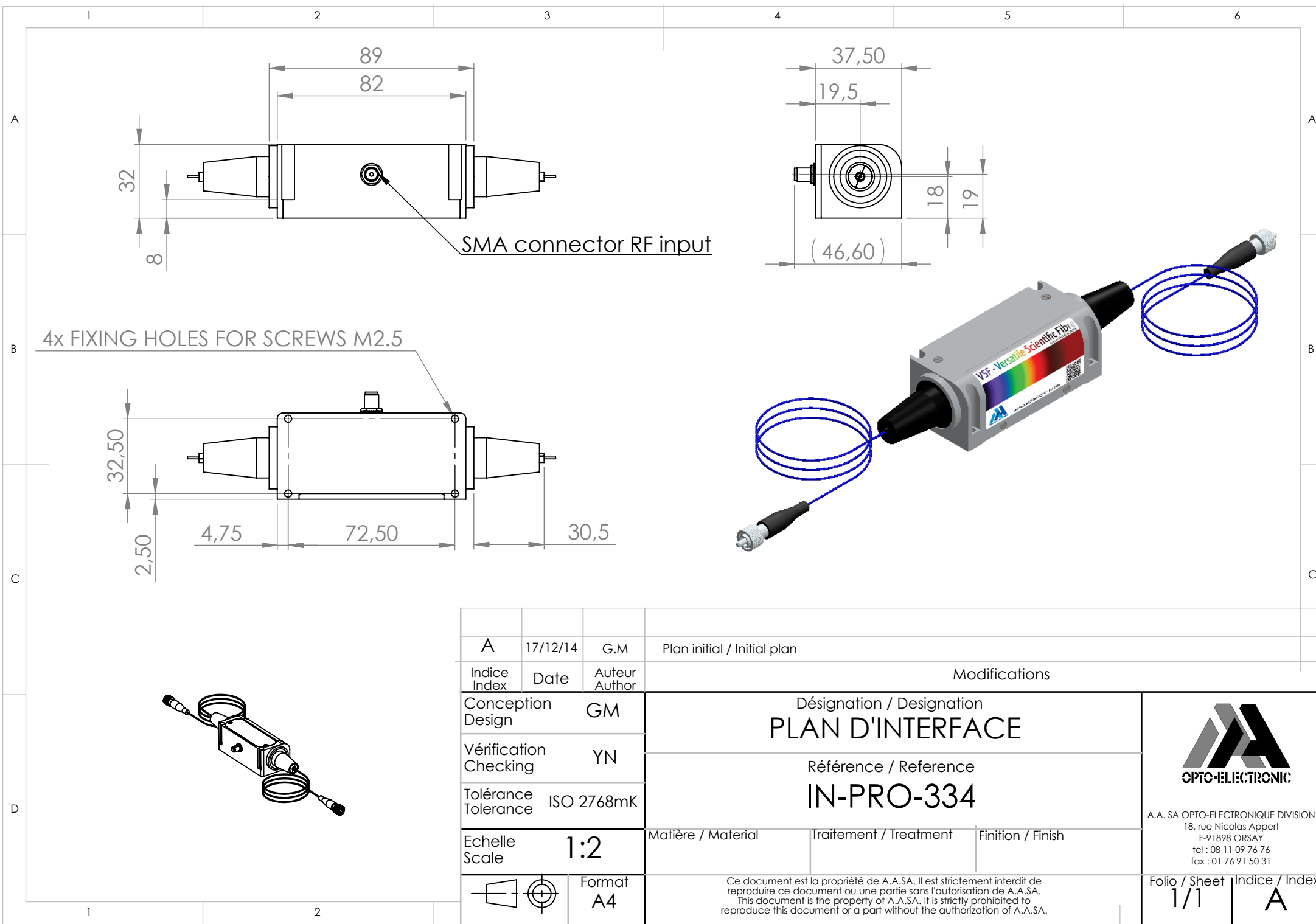


Relative Efficiency / AOM temporal response

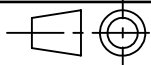


Relative Efficiency / AOM temporal response (1MHz)





4x FIXING HOLES FOR SCREWS M2.5

A	17/12/14	G.M	Plan initial / Initial plan		
Indice Index	Date	Auteur Author	Modifications		
Conception Design	GM		Désignation / Designation PLAN D'INTERFACE		 OPTO-ELECTRONIC
Vérification Checking	YN		Référence / Reference IN-PRO-334		
Tolérance Tolerance	ISO 2768mK				
Echelle Scale	1:2				
			Matière / Material	Traitement / Treatment	Finition / Finish
			Format A4		Ce document est la propriété de A.A.SA. Il est strictement interdit de reproduire ce document ou une partie sans l'autorisation de A.A.SA. This document is the property of A.A.SA. It is strictly prohibited to reproduce this document or a part without the authorization of A.A.SA.
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