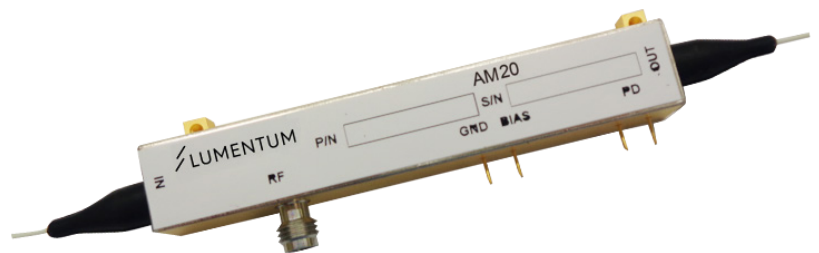


20/40 GHz Intensity Modulators for Analog Applications

AM20, AM40



Lumentum broadband analog intensity modulators combine high linearity with low driving voltage and small footprint, covering all the frequency range from 20 to beyond 40 GHz (AM20: 20 – 30 GHz; AM40: > 30 GHz). The increasing demand to shift the transmission frequency in microwave fiber optic links towards higher frequency finds in Lumentum analog modulators the most advanced and suitable answer. The experience and know-how of Lumentum engineers is available to customize our products to the customer's specific requirements.

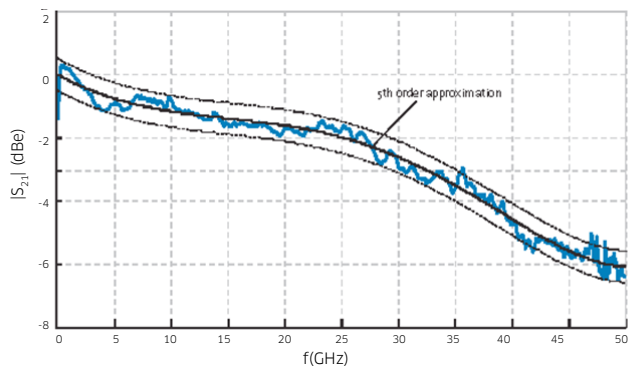
Key Features

- Titanium-indiffused waveguides
- X-cut LiNbO₃
- Low drive voltage compatible with commercially available drivers
- Low optical insertion loss
- Operating up to 60 GHz
- Smooth frequency response up to >60 GHz
- Integrated photodiode
- Integrated polarizer

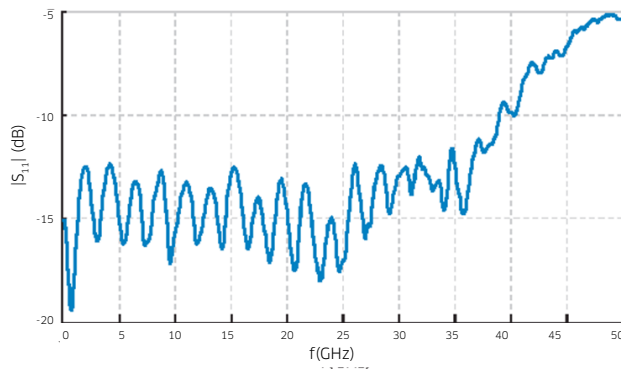
Applications

- Antenna remoting
- High frequency fiber optic links
- Analog microwave over fiber (RoF)
- Delay lines telemetry systems
- Instrumentation (optical network analyzers)

Performance Characteristics



Electro optical response (40 GHz example)



Electrical return loss (40 GHz example)

Absolute Maximum Ratings

Parameters	Conditions	Min	Max	Unit
Maximum input power (electrical)	RF port		25	dBm
Maximum input power (optical)			100	mW
Maximum operating temperature variation rate	CW		1	°C/min
Storage temperature range		-40	+85	°C
Operating temperature range		0	+70	°C

Specifications

Parameters	Typical Value	Units
Optical		
Operating wavelength range	1525 - 1615	nm
Insertion loss	< 4.5	dB
Optical return loss (without connectors)	≥ 45	dB
Extinction ratio	> 20	dB
Electrical		
S_{21} electro-optic bandwidth (-3 dBc)	AM20: > 20; AM40: > 30	GHz
S_{11} return loss	< -10	dB
RF V_{π} voltage (@ 1 kHz)	5	V
Bias V_{π} voltage (@ 1 kHz)	5.5	V
Photodiode responsivity	10^{-3}	mA/W
Linearity	$\pm 10\%$	

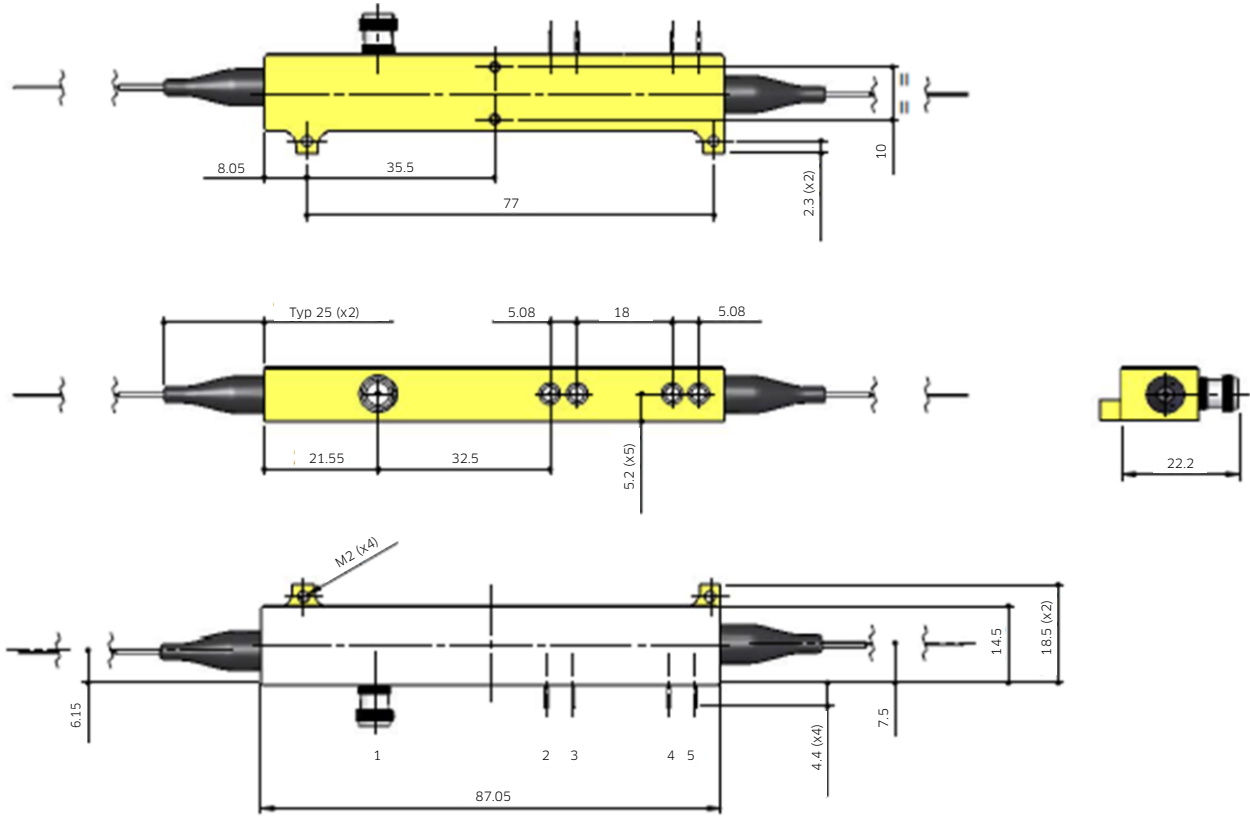
Pin-Out and Fiber Specifications

RF connector	V-Connector ¹
Bias and PD connector	LEAD pins
Input fiber	Corning/Fujikura SM15P UV/UV250 (Panda fiber)
Output fiber	Corning/Fujikura SM15P UV/UV250 (Panda fiber)

Note 1. V-Connector is a registered trademark of the Anritsu Corporation.

Package Footprint

AM20 (AM40 is equivalent)



Dimensions are in mm
Detailed drawing on request

Pin #	Description
1	RF input
2	Ground
3	Bias
4	Photodiode cathode
5	Photodiode anode

Ordering Information:

For more information on this or other products and their availability, please contact your local Lumentum account manager or Lumentum directly at customer.service@lumentum.com.

Product Description	Part Number
20 GHz intensity modulator for analog applications, AM20	79210511-A
40 GHz intensity modulator for analog applications, AM40	9210512-A



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