



■ AFR Headquarters

No. 399, Chuangxin 3rd Road, Tangjia, Zhuhai, China 519080
Tel: +86 756 389 8088 Fax: +86 756 389 8080
Email: sales@fiber-resources.com
Web: www.fiber-resources.com

■ AFR Zhuhai (Jinding Campus)

No. 168, Jinrui 2nd Road, Tangjia, Zhuhai, China 519085
Tel: +86 756 389 8088 Fax: +86 756 389 8080
Email: sales@fiber-resources.com
Web: www.fiber-resources.com

AFR Subsidiaries

■ AFR Milan

Via Federico Fellini, 4-San Donato Milanese (MI)-20097, Italy
Tel: +39 02 51884 1
Email: salesmilan@fiber-resources.com
Web: www.afrmilan.com

■ AFR Thailand

107 Moo 18, Khlong Nueng Sub-District, Khlong Luang District, Pathum Thani 12120
Email: salesth@fiber-resources.com
Web: www.fiber-resources.com

■ AFR Hong Kong

Room 1002, 10/F., Ho Lik Centre, 66A Sha Tsui Road, Tsuen Wan, N.T. Hong Kong
Tel: +852 2493 2026
Email: sales@fiber-resources.com
Web: www.fiber-resources.com

■ Vlink Optics Corporation

No. 399, Chuangxin 3rd Road, Tangjia, Zhuhai, China 519080
Tel: +1 714 699 2653
Email: isvlink@vlinkoptics.com
Web: www.vlinkoptics.com

■ Arcadia Optronix Inc.

No. 399, Chuangxin 3rd Road, Tangjia, Zhuhai, China 519080
Tel: +86 756 389 8338 Fax: +86 756 389 8080
Email: sales@arcopt.com
Web: www.arcopt.com

■ B&A Technology

Bldg 4, No.150, Cailun Rd, Pudong, Shanghai China 201210
Tel: +86 21 5855 0298 Fax: +86 21 6129 4627
Email: sales@baphoton.com
Web: www.edfaamplifier.com

LiNbO₃ Modulators & Chips

2025





COMPANY INTRODUCTION

Advanced Fiber Resources (AFR), established in 2000, is a leading supplier of fiber optical components. With its strong R&D and design capabilities, high efficient manufacturing process and strict quality control, AFR designs and manufactures standard and custom components, modulators, and provides contract manufacturing solutions to our customers. Our products are widely used in fiber laser, telecom, data center, fiber sensing, autonomous driving, biomedical equipment, as well as research institutes and universities around the globe. AFR's products have been sold to customers in more than 40 countries and regions worldwide.



25
Years of History



2017
IPO in China



2,000
Employees



115,000
m² Facility



262
Patents



600
Customers

QUALITY

At AFR, quality is our top priority and an integral part of everything we do. The product quality management covers from product development, supply chain management, manufacturing to after-sales. AFR's quality management system fulfills the requirements of ISO 9001:2015, ISO 14001:2015 and IATF 16949, and all products are qualified with Telcordia GR-468 and GR-1221-CORE reliability test.

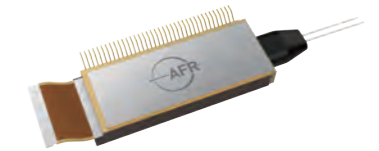
The company currently has seven dedicated laboratories and equipped with many high precision instruments, to ensure excellent reliability of our products. We have built an optical precision processing center and a machining center, manufacturing crystals, mirrors, PBS, other flat surface optics and mechanical components in-house, the key material production capability makes us more competitive.

We strive to continuously improve our products with proactive, data driven, quality first systems and processes.



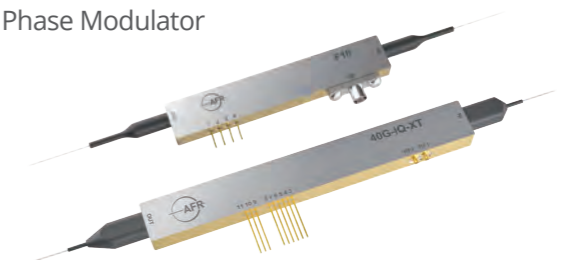
Thin-Film LiNbO₃ Products

HB-CDM-130G	C+L Band 130 GBaud Coherent Driver Modulator
AM70	C+L Band 70 GHz Intensity Modulator
TFLN 40G-IQ	40 GHz TFLN IQ Modulator
800 Gb/s PAM-4	O-Band Thin-Film LiNbO ₃ Modulator Chip



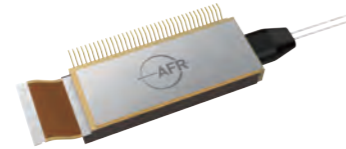
Bulk LiNbO₃ Products

F10	C-Band 10 GHz High Bandwidth Zero-Chirp Modulator
AM20-XT/AM40-XT	C-Band 20/40 GHz Extended Temperature Intensity Modulator
PM10-C	C-Band 10 GHz Phase Modulator
40G-IQ-XT	C-Band 20 GHz x 2 Extended Temperature IQ Modulator
PM0.2-1060-XT	1060 nm 0.2 GHz Extended Temperature Phase Modulator
PM2.5-1060-XT	1060 nm 2.5 GHz Extended Temperature Phase Modulator
PM10-1060-XT	1060 nm 10 GHz Extended Temperature Phase Modulator



C+L Band 130 GBaud Coherent Driver Modulator (HB-CDM-130G)

AFR's HB-CDM-130G is a Quad-Channel 130 GBaud High-Bandwidth coherent driver modulator integrated with an RF driver, based on Thin-Film LiNbO₃ chip. It is designed for 400/800 Gb/s/1.2Tb/s coherent optical transport systems and transceivers, with Baud rate over 130G per channel.



Features

- Support Coherent Transmission at Baud Rate of up to 130 GBaud
- C/C++ Band, and L/L++ Band Available
- Electro-Optic Bandwidth: 65 GHz
- Optical Extinction Ratio ≥ 23 dB
- Power Consumption < 3.5 W
- Compatible with OIF-HB-CDM-02.0 IA Class 80 - Type 3
- Standard Form Factor Module 30 x 12 x 4.5 mm

Applications

- DP-QPSK Coding
- DP-16QAM Coding
- DP-64QAM Coding



C+L Band 70 GHz Intensity Modulator (AM70)

AFR's Thin-Film LiNbO₃ intensity modulators that expand the performance of traditional LiNbO₃ modulators combining much lower driving voltage and smaller footprint while extending the bandwidth above 65 GHz. The increasing demand to shift the transmission frequency in analog fiber optic links towards higher frequency finds in AFR analog modulators the most advanced and suitable answer. The experience and know-how of AFR engineers is available to customize our products to the customer's specific requirements.



Features

- X-Cut Thin-Film LiNbO₃ Waveguides
- Operating Wavelength at 1530 - 1610 nm
- Electro-Optic Bandwidth > 65 GHz
- Low Drive Voltage
- Optical Extinction Ratio ≥ 25 dB
- Single-End Drive

Applications

- Digital/Analog Transmission
- High Frequency Fiber Optic Links
- Delay Lines Telemetry Systems
- Instrumentation



40 GHz TFLN IQ Modulator

The 40G-Thin Film modulator design is based on a dual parallel structure of 2 Mach-Zehnder modulators embedded in a Mach-Zehnder super-structure. Each internal modulator is designed to have EO bandwidth above 20 GHz. Monitor photodiode is provided for automatic bias control.



Features

- Thin Film X-Cut Lithium Niobate
- Operating at C-Band
- Electro-Optic Bandwidth > 25 GHz
- Compliance with Telcordia GR-468-CORE
- Hermetically Sealed
- Excellent Linearity

Applications

- OFDM Coding
- QPSK Coding
- QAM Coding
- CS-SSB(Carrier Suppressed Single Side Band)
- FMCW LiDAR in Autonomous Driving



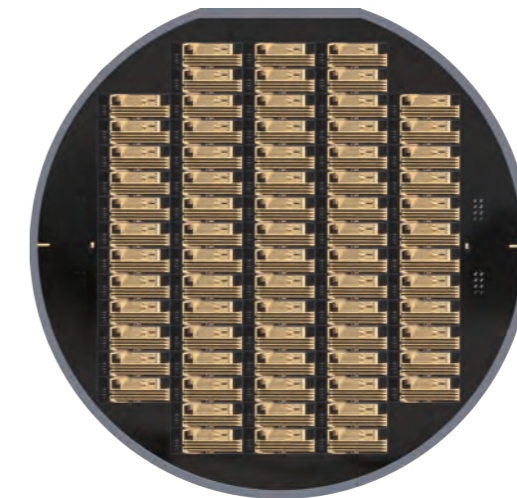
O-Band Thin-Film LiNbO₃ Modulator Chip (800 Gb/s PAM-4)



With the cutting-edge Thin-Film LiNbO₃ technology, AFR's PAM-4 modulator products support intra data center and data center interconnect at data rate of 800 Gb/s, 1.6Tb/s and beyond, enabling optical I/Os for ultra-high bandwidth switches at 25.6T, 51.2T, 102.4T and beyond.

AFR's PAM-4 product portfolio includes DR4, DR8, FR4 and 2xFR4 modulator chips and Sub-Assemblies for QSFP-DD, OSFP and OSFP-XD optical modules, with low drive voltage and low insertion loss at data rate of 800 Gb/s and above.

Applications of AFR's PAM-4 Chip: QSFP-DD/OSFP/OSFP-XD Type Transceiver Modules



Ordering Information

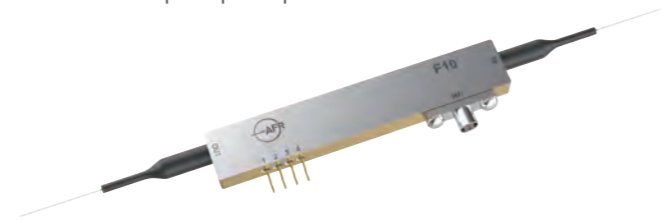
Please contact AFR sales for customized PAM-4 modulator products.

C-Band 10 GHz High Bandwidth Zero-Chirp Modulator (F10)

AFR High Bandwidth Zero-Chirp F10 modulators are based on the Mach-Zehnder Interferometer (MZI) architecture. They are manufactured using the highly reliable titanium indiffusion technology in X-Cut, Y-Propagating LiNbO₃ substrates. The F10 is a single drive modulator designed for high bit rate advanced metro to long haul communication systems that requires the superior performance. The F10 modulator contains an integrated photo detector that may be used to set and lock the DC bias on the modulator as well as provide an estimate of the modulator output optical power.

Features

- Titanium-Indiffused Waveguide
- X-Cut LiNbO₃
- Electro-Optic Bandwidth > 12.5 GHz
- Optical Insertion Loss < 4.5 dB
- RF V_π Voltage: 5 V (typ. @ 1 kHz)
- Integrated Monitor Photodiode
- Integrated Polarizer
- Compliance with Telcordia GR-468-CORE



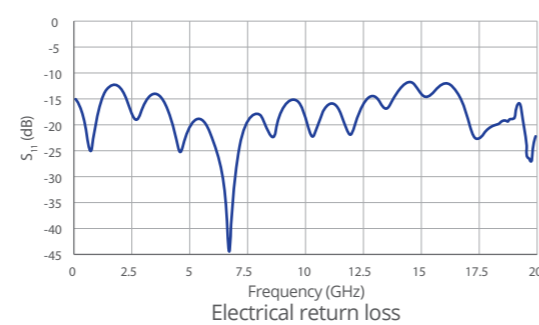
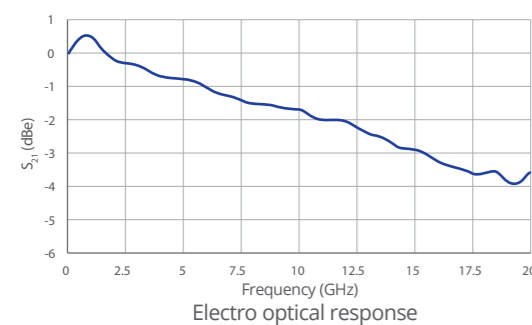
Applications

- External Intensity Modulation NRZ and RZ
- High Frequency RF Signal Over Fiber Optic Links
- Instrumentation

Optical and Electrical Specifications

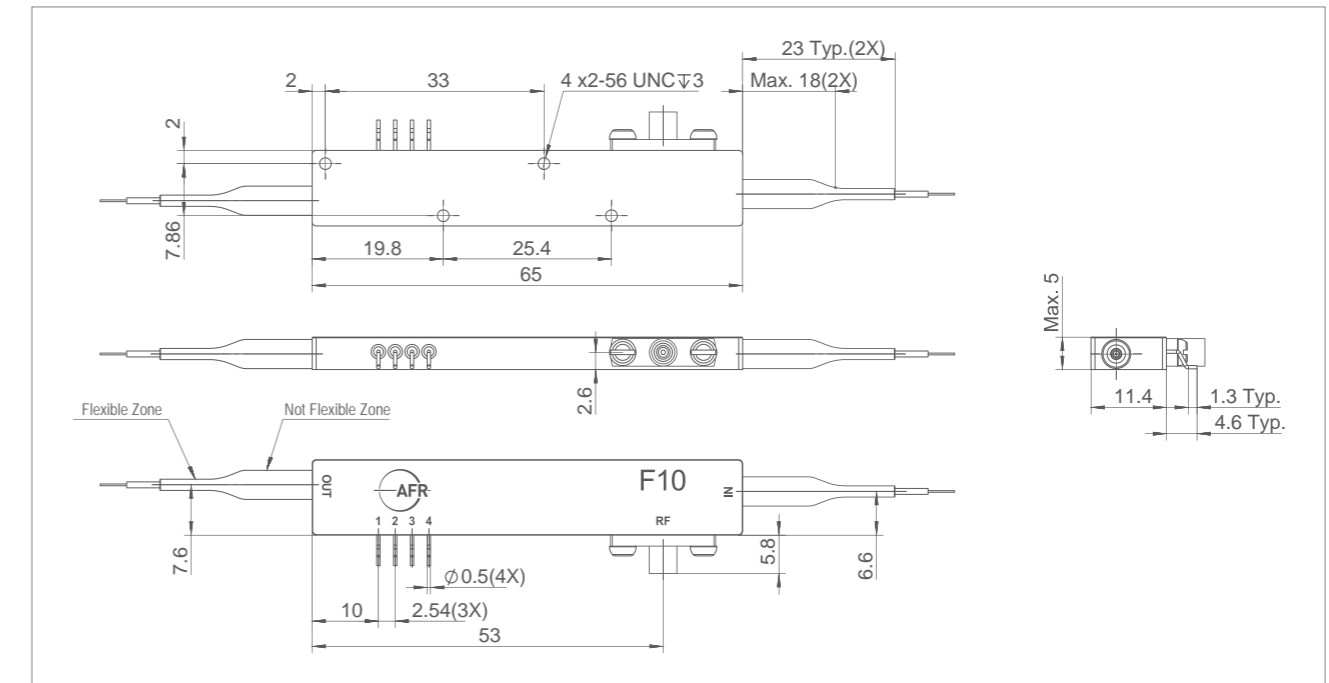
Parameter	Conditions	Min	Typ	Max	Unit
Optical					
Operating Wavelength	-	1525	-	1570	nm
Insertion Loss	w/o connector	-	-	4.5	dB
Extinction Ratio	@ DC	20	24	-	dB
Maximum Optical Input Power	CW	-	-	100	mW
PRBS Eye Extinction Ratio	10.7 Gb/s PRBS 2 ³¹ -1	13	-	-	dB
Electrical - RF Port					
S ₂₁ Electro-Optic Bandwidth	- 3 dB, 130 MHz	11	-	-	GHz
Bandwidth Ripple	130 MHz - 12.5 GHz	- 1	-	1	dB
S ₁₁ Electrical Return Loss	130 MHz - 12.5 GHz	10	11	-	dB
RF V _π Voltage	@ 1 kHz	-	5	6.5	V
Electrical - Bias Port					
Bias V _π Voltage	@ 1 kHz	-	5.5	6.0	V
Pinout and Fiber Specifications					
RF Connector	GPO male				
Input Fiber	Corning PM15-U25D or PM15-U40D (Panda Fiber), > 1.0 m, 900 μm loose tube fiber				
Output Fiber	Corning SMF-28™ or PM15-U25D (Panda Fiber), >1.0 m, 900 μm loose tube fiber				

Performance Characteristics



C-Band 10 GHz High Bandwidth Zero-Chirp Modulator (F10)

Package Dimensions



* All dimensions measured in mm. L1 is fiber length with 900 μm loose tube. L2 is length of bare fiber.

Pinout Information

Pin	Name	Description
1	PD-C	Photodiode Cathode (-)
2	PD-A	Photodiode Anode (+)
3	Bias	MZ DC Bias Voltage
4	GND	Ground
RF	-	RF Input (GPO male)

Ordering Information

103076200010

F10, C-band 10 GHz High Bandwidth Zero-Chirp LiNbO₃ Intensity Modulator (Black) Corning PM15-U40D, (Blue) Corning SMF-28TM, > 1.1 m, 900 μm PMF/SMF loose tube fiber

103076200007

F10, C-band 10 GHz High Bandwidth Zero-Chirp LiNbO₃ Intensity Modulator (Black) Corning PM15-U25D, > 1.1 m, 900 μm PMF/PMF loose tube fiber

103076200013

F10, C-band 10 GHz High Bandwidth Zero-Chirp LiNbO₃ Intensity Modulator (Black) Corning PM15-U40D, > 1.0 m, 900 μm PMF/PMF loose tube fiber

C-Band 20/40 GHz Extended Temperature Intensity Modulator (AM20-XT/AM40-XT)

AFR Broadband Analog Intensity Modulators combine high linearity with low driving voltage and small footprint, covering frequency range from 20 GHz to beyond 40 GHz (AM20-XT: 20 - 30 GHz; AM40-XT: > 30 GHz). The experience and know-how of AFR engineers is available to customize our products to the customer's specific requirements.



Features

- Titanium Indiffused Waveguides
- X-Cut LiNbO₃
- Operating at C+L-Band
- Electro-Optic Bandwidth > 32 GHz
- Low Drive Voltage Compatible with Commercially Available Drivers
- Low Optical Insertion Loss
- Integrated Photodiode
- Integrated Polarizer
- Hermetically Sealed
- Operating and Storage Temperature at - 55 to + 85°C

Applications

- Digital/Analog Transmission
- High Frequency RF over Fiber Optic Links
- Delay Lines Systems
- Instrumentation



C-Band 20/40 GHz Extended Temperature Intensity Modulator (AM20-XT/AM40-XT)

Optical and Electrical Specifications

Parameter	Conditions	Value (AM20-XT)	Value (AM40-XT)	Unit
Optical				
Operating Wavelength	-	1525 - 1615	1525 - 1615	nm
Insertion Loss	No connectors	< 4.5 (3.5 typ)	< 5.0 (4.0 typ)	dB
	With connectors	< 5.0 (4.0 typ)	< 5.5 (4.5 typ)	
Optical Return Loss	No connectors	> 45	> 45	dB
Polarization Extinction Ratio	-	> 20 (23 typ)	> 20 (23 typ)	dB

Electrical – RF Port

S ₂₁ Electro-Optic Bandwidth	- 3 dBe	> 20 (23 typ)	> 30 (31 typ)	GHz
S ₁₁ Electrical Return Loss	40 MHz – 20 GHz	< - 10 (- 12 typ)	< - 10 (- 12 typ)	dB
	20 GHz – 35 GHz	-	< - 8 (- 10 typ)	-
RF V _π Voltage	@ 1 kHz	< 5.0 (4.5 typ)	< 5.2 (4.7 typ)	V
	@ 20 GHz	6.0	6.0	V
RF Impedance	-	50	50	Ω
Bias V _π Voltage	@ 1 kHz	< 5.5 (5.0 typ)	< 5.5 (5.0 typ)	V
Bias Impedance	@ DC	1	1	MΩ
Photodiode Responsivity	-	> 1 x 10 ⁻³	> 1 x 10 ⁻³	mA/W
Linearity	-	± 10%	± 10%	-

Pinout and Fiber Specifications

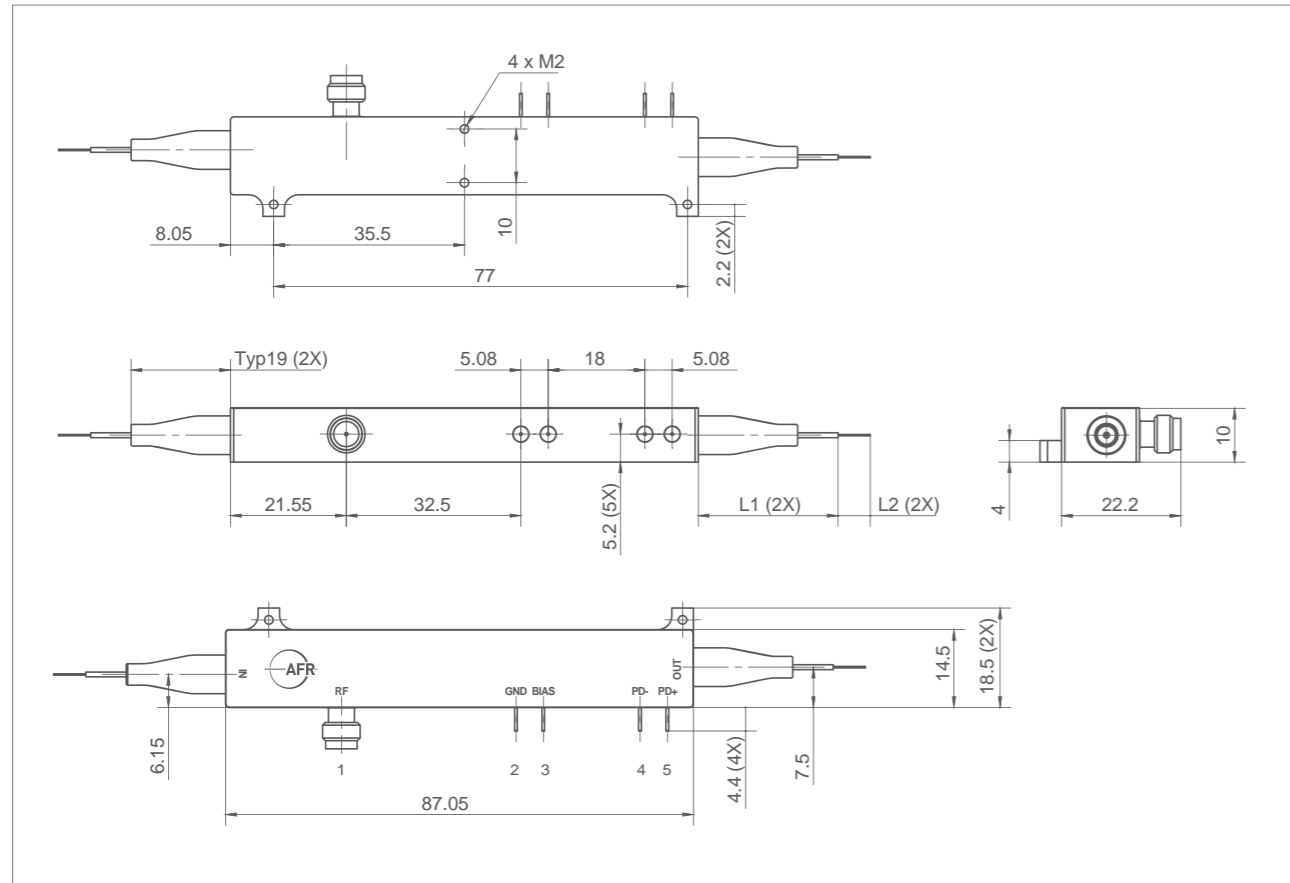
RF Connector	V-Connector
Bias and PD Connector	LEAD pins
Input Fiber	Corning/Fujikura SM15P UV/UV250 (Panda Fiber), > 1.3 m, 900 μm loose tube fiber
Output Fiber	Corning/Fujikura SM15P UV/UV250 (Panda Fiber), > 1.3 m, 900 μm loose tube fiber

Absolute Maximum Ratings

Parameter	Conditions	Min	Max	Unit
Maximum RF Input Power	RF port AC coupled	-	25	dBm
Maximum Optical Input Power	CW	-	100	mW
Operating Case Temperature	AM20-XT/AM40-XT	- 55	+ 85	°C
Storage Temperature	AM20-XT/AM40-XT	- 55	+ 85	°C
Maximum Operating Temperature Variation Rate	AM20-XT/AM40-XT	-	10	°C/min
Operating Humidity	-	5	85	%
Leads Soldering Temperature	-	-	+ 250	°C
Leads Soldering Time	-	-	10	s

C-Band 20/40 GHz Extended Temperature Intensity Modulator (AM20-XT/AM40-XT)

Mechanical Outline



* AM20-XT and AM40-XT have same footprints. All dimensions measured in mm. L1 is fiber length with 900 μ m loose tube. L2 is length of bare fiber.

Pinout Information

Pin	Name	Description
1	RF	RF input, V-connector
2	GND	Ground
3	Bias	Bias Voltage
4	PD-C	Photodiode cathode
5	PD-A	Photodiode anode

Ordering Information

103076200001

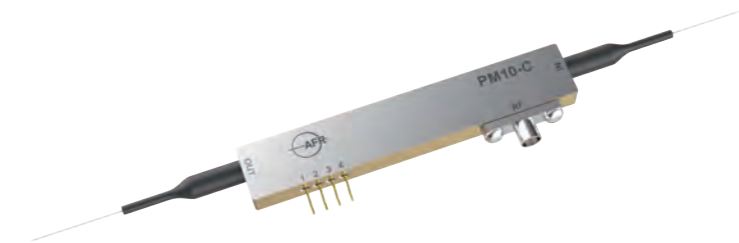
AM20-XT, C-Band 20 GHz Extended Temperature Intensity Modulator
(> 1.3 m, 900 μ m PMF/PMF loose tube fiber)

103076200004

AM40-XT, C-Band 40 GHz Extended Temperature Intensity Modulator
(> 1.3 m, 900 μ m PMF/PMF loose tube fiber)

C-Band 10 GHz Phase Modulator (PM10-C)

AFR broadband phase modulators combine high linearity with low driving voltage and small footprint, covering all the frequency range up to 10 GHz.



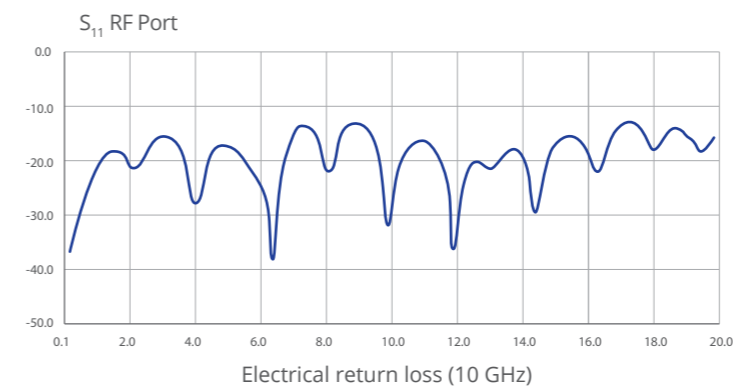
Features

- Titanium-Indiffused Waveguide
- Z-Cut LiNbO₃
- Frequency Response up to 10 GHz
- Low Optical Insertion Loss

Applications

- FM Spectroscopy
- Frequency Shifting
- Laser Linewidth Broadening
- Laser Beam Combining
- Quantum Key Distribution
- Interferometric Fiber Sensing

Performance Characteristics



C-Band 10 GHz Phase Modulator (PM10-C)

Optical and Electrical Specifications

Parameter	Conditions	Min	Typ	Max	Unit
Optical					
Operating Wavelength Range	-	1530	-	1565	nm
Insertion Loss, IL	No connectors	-	2.5	3.5	dB
	With connectors	-	3.0	4.0	
Optical Return Loss, RL	No connectors	-	45	-	dB
Polarization Dependent Loss	-	-	10	-	dB

Electrical

S ₂₁ Electro-optic Bandwidth	- 3 dBe	10	12	-	GHz
ΔS ₂₁ Ripple	-	-	0.5	1.0	dB
S ₁₁ Electrical Return Loss	-	-	- 15	- 10	dB
RF V _π Voltage	@ 50 kHz	-	4	5	V
	@ 10 GHz	-	6	7	
RF Input Impedance	-	-	50	-	Ω

Pinout and Fiber Specifications

RF Connector	GPO male
Ground	LEAD pins
Input Fiber	Corning/Fujikura SM15P UV/UV250 (Panda Fiber), > 1.5 m, 900 μm loose tube fiber
Output Fiber	Corning/Fujikura SM15P UV/UV250 (Panda Fiber), > 1.5 m, 900 μm loose tube fiber

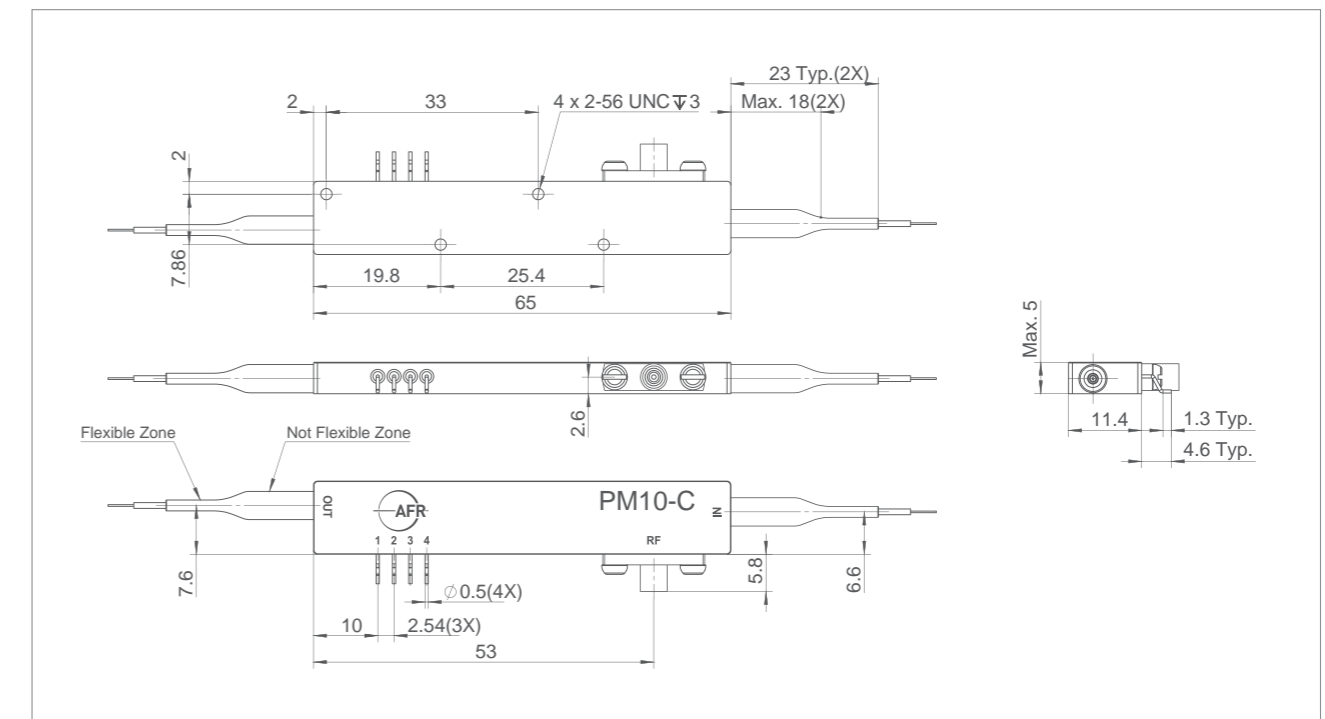
Absolute Maximum Ratings

Parameter	Conditions	Min	Max	Unit
Maximum Input Power (Electrical)	RF port AC coupled	-	28	dBm
Maximum Input Power (Optical)	CW	-	20	dBm
Operating Case Temperature	-	0	+ 70	°C
Storage Temperature	-	- 40	+ 85	°C
Maximum Operating Temperature Variation Rate	-	-	1	°C/min
Operating Humidity	-	5	85	%
Leads Soldering Temperature	-	-	+ 250	°C
Leads Soldering Time	-	-	10	s

* All requirements at Top = 25 °C, wavelength 1550 nm and BOL unless otherwise specified.

C-Band 10 GHz Phase Modulator (PM10-C)

Mechanical Outline



* All dimensions measured in mm. L1 is fiber length with 900 μm loose tube. L2 is length of bare fiber.

Pinout Information

Pin	Name	Description
1	GND	Ground
2	GND	Ground
3	GND	Ground
4	GND	Ground
RF	-	RF Input (GPO male)

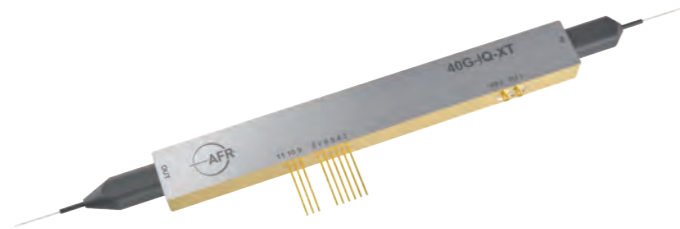
Ordering Information

103076100001

PM10-C, C-Band 10 GHz LiNbO₃ Phase Modulator,
(> 1.5 m, 900 μm PMF/PMF loose tube fiber)

C-Band 20 GHz x 2 Extended Temperature IQ Modulator (40G-IQ-XT)

The 40G-IQ-XT modulator design is based on a dual parallel structure of two Mach-Zehnder modulators embedded in a Mach Zehnder super-structure. Each internal modulator is designed to have EO bandwidth above 20 GHz. Monitor photodiode is provided for automatic bias control. The 40G-IQ-XT version is provided extended operating temperature at -55 to +85°C for different environmental applications.



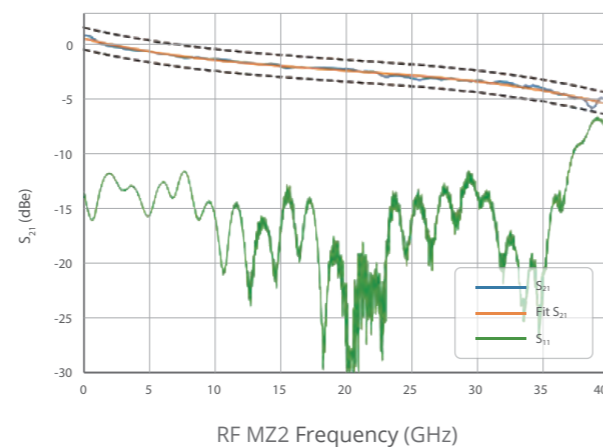
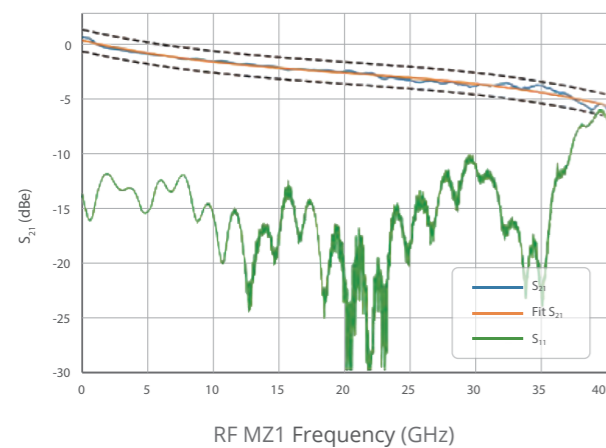
Features

- Titanium-Indiffused Waveguide
- X-Cut LiNbO₃
- Electro-Optic Bandwidth > 30 GHz
- Low Optical Insertion Loss
- Compliance with Telcordia GR-468-CORE
- Extended Operating Temperature at -55 °C to +85 °C
- Hermetically Sealed
- Excellent Linearity

Applications

- OFDM Coding
- QPSK Coding
- QAM Coding
- CS-SSB (Carrier Suppressed Single Side Band)
- FMCW LiDAR in Autonomous Driving

Performance Characteristics



C-Band 20 GHz x 2 Extended Temperature IQ Modulator (40G-IQ-XT)

Specifications

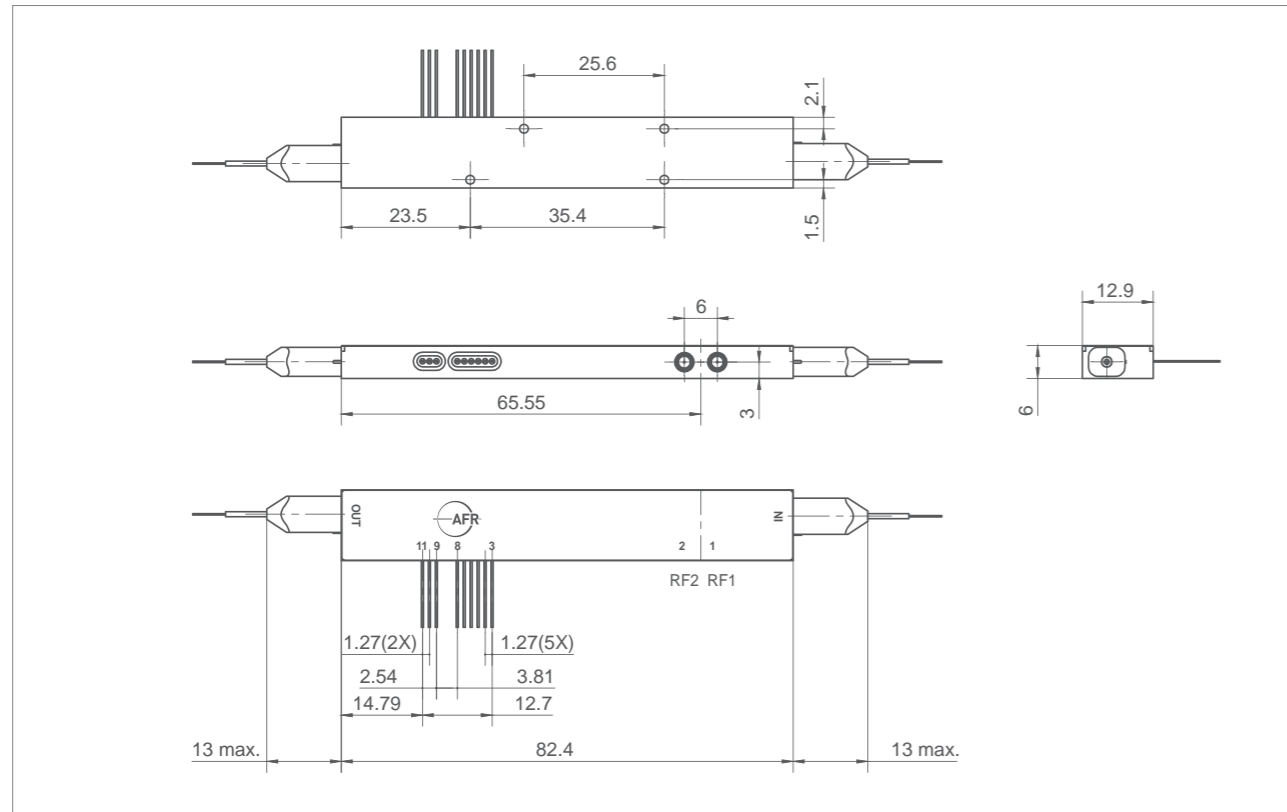
Parameter	Conditions	Min	Typ	Max	Unit
Optical					
Operating Wavelength Range	-	1525	-	1570	nm
Insertion Loss, IL	EOL, -5 to +75 °C, over C-Band	-	5.0	7.0	dB
Phase-MZI Optical Extinction Ratio @ DC	-	24	-	-	dB
RF-MZI Optical Extinction Ratio @ DC	-	24	29	-	dB
PER	-	20	-	-	dB
Optical Return Loss, RL	Input & Output	40	-	-	dB
Maximum Input Power (Optical)	CW	-	-	100	mW
Electrical RF Ports					
RF-MZI V _π Voltage	@ 1 kHz	-	5.0	7.0	V
RF-MZO -3 dB E/O Bandwidth	wrt. 2 GHz	20	23	-	GHz
RF-MZI S ₂₁ Flatness	300 MHz – 20 GHz	-1	-	1	dB
Amplitude Difference Between -MZIs (Difference between two S ₂₁)	-	-1	-	1	dB
RF Delay Between RF-MZIs	-	-5	-	5	ps
RF-MZI Electrical Return Loss S ₁₁	40 MHz – 17 GHz 17 GHz – 30 GHz	10 8	12 10	-	dB
Electrical Bias Ports					
RF MZI Bias V _π Voltage	@ 1 kHz	-	7	8	V
Phase MZI Bias V _π Voltage	@ 1 kHz	-	7	8	V
RF and Phase MZI Bias V _π Voltage Variation Over Wavelength	1550 nm	-5	-	5	%
Bias Port Impedance	@ DC	1	-	-	MΩ
Monitor Photodiode					
Responsivity	-	20	-	120	mA/W
Linearity	-	-10	-	10	%
Phase Error	PD is not inverting	-5	-	5	Degree
Pin-Out and Fiber Specifications					
RF Connector	SMPM male				
Bias Ports	DC pins				
Input Fiber	Polarization Maintaining Fiber, PMF - Panda (Corning/Fujikura PM15-U25D), > 1.5 m, 900 μm loose tube fiber				
Output Fiber	Polarization Maintaining Fiber, PMF - Panda (Corning/Fujikura PM15-U25D), > 1.5 m, 900 μm loose tube fiber				

Absolute Maximum Ratings

Parameter	Conditions	Min	Max	Unit
Maximum Input Power (Electrical)	RF port AC coupled	-	10	V _{pk-pk}
DC Voltage at DC Port	-	-40	40	V
Monitor Photodiode Reverse Current	-	-	< 2	mA
Monitor Photodiode Forward Current	-	-	< 10	mA
Monitor Photodiode Reverse Voltage	-	-	< 15	V
Operating Case Temperature	40G-IQ-XT	-55	+85	°C
Maximum Top Variation Rate	40G-IQ-XT	-	10	°C/min
Storage Temperature	40G-IQ-XT	-55	+85	°C
Operating Humidity	Non-Condensing	5	85	%

C-Band 20 GHz x 2 Extended Temperature IQ Modulator (40G-IQ-XT)

Mechanical Outline



* All dimension measured in mm.

Pin-Out Information

Pin	Name/Description	Note
1	RF. 1	RF Input (SMPM male)
2	RF. 2	RF Input (SMPM male)
3	BIAS 2+	Bias wrt RF.2 +V
4	BIAS 2-	Bias wrt RF.2 -V
5	BIAS 1+	Bias wrt RF.1 +V
6	BIAS 1-	Bias wrt RF.1 -V
7	Bias PH+	Bias Phase +V
8	Bias PH-	Bias Phase -V
9	PD Cathode	- ve
10	PD Anode	+ ve
11	GND	Ground

Note: The pin# 3&4, 5&6, 7&8 pin pair doesn't need to be exact as above table, but any pin pair need to be of opposite voltage.

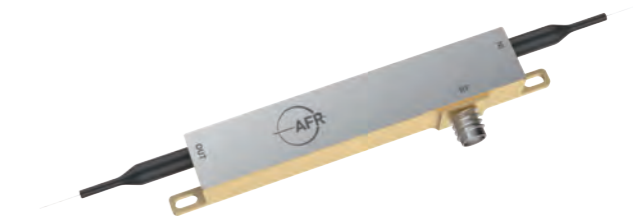
Ordering Information

103076300008

40G-IQ-XT, C-Band 20 GHz x 2 Extended Temperature IQ Modulator (>1.4 m, 900 μm PMF/PMF loose tube fiber)

PM0.2-1060-XT/PM2.5-1060-XT/PM10-1060-XT Phase Modulator

AFR Broadband Phase Modulator combines high linearity with low driving voltage and small footprint, covering frequency range from DC up to 10 GHz. The extended operating temperature range given this series of phase modulators can operate at different environmental applications.



Features

- APE Waveguide
- Z-Cut LiNbO₃
- Operating Wavelength Range 950 - 1150 nm
- Low Drive Voltage Compatible with Commercially Available Drivers
- Low Optical Insertion Loss
- Frequency Response up to 0.2 GHz (PM0.2-1060-XT)
- Frequency Response up to 2.5 GHz (PM2.5-1060-XT)
- Frequency Response up to 10 GHz (PM10-1060-XT)
- Extended Operating Temperature at - 55 to + 85°C
- Hermetically Sealed

Applications

- Ultra-Fast High-Power Lasers
- Phase Shifting
- Laser Linewidth Broadening
- Laser Beam Combining

Optical and Electrical Specifications

Parameter	Conditions	Min	Typ	Max	Unit
Optical					
Operating Wavelength Range	-	1025	-	1090	nm
Insertion Loss, IL	Standard/Premium	-	-	3.0 / 2.0	dB
Optical Return Loss, RL	-	40	45	-	dB
Polarization Dependent Loss	-	25	30	-	dB

Electrical

S ₂₁ Electro-optic Bandwidth	PM0.2-1060-XT @ - 3 dBc	0.2	-	-	GHz
	PM2.5-1060-XT @ - 3 dBc	2.5	-	-	
	PM10-1060-XT @ - 3 dBc	10	-	-	
ΔS ₂₁ Ripple	-	-	0.5	1.0	dB
S ₁₁ Electrical Return Loss	-	-	-	- 10	dB
V _r RF Voltage	PM0.2-1060-XT @ 50 kHz	-	-	2	V
	PM2.5-1060-XT @ 50 kHz	-	-	2	
	PM10-1060-XT @ 50 kHz	-	-	2	
RF Input Impedance	-	-	50	-	Ω

Pinout and Fiber Specifications

RF Connector	2.92 mm Female K connector
Input Fiber & Output Fiber	Corning PM98-U25D (PM980), > 1.5 m, 900 μm PMF/PMF loose tube fiber

* Without optical connectors

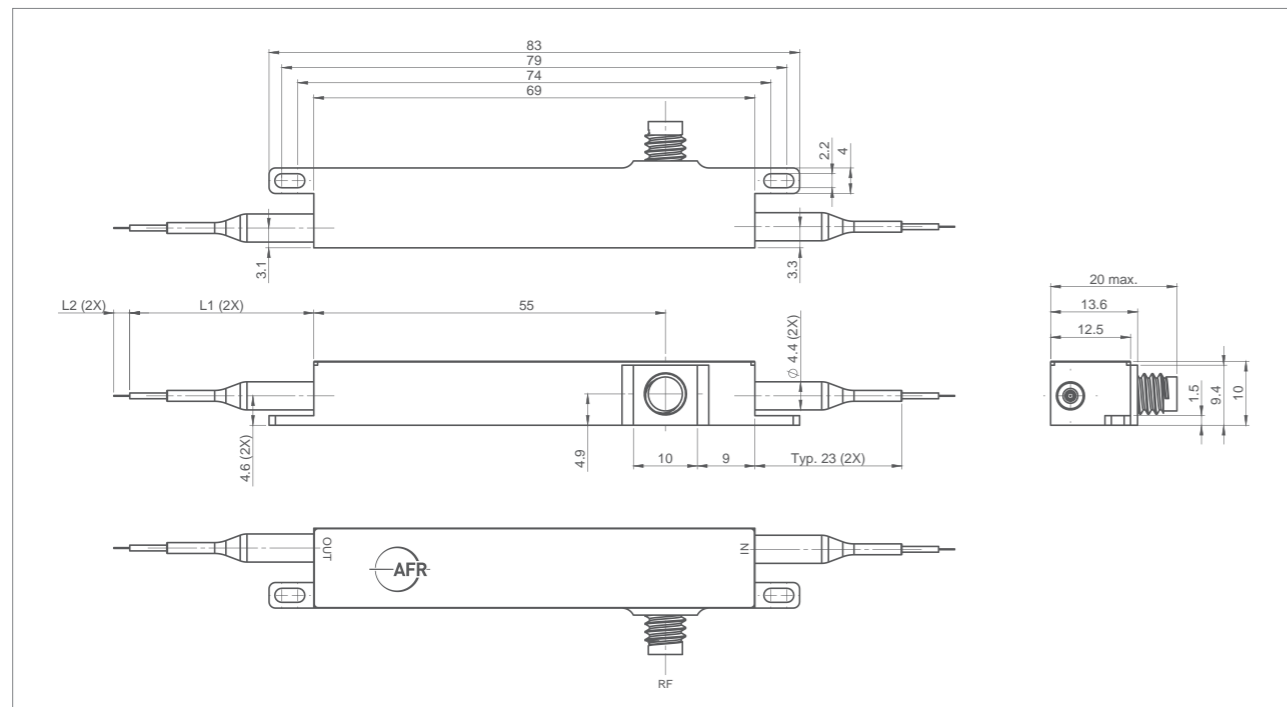
Bulk LiNbO₃ Products

PM0.2-1060-XT/PM2.5-1060-XT/PM10-1060-XT Phase Modulator

Absolute Maximum Ratings

Parameter	Conditions	Min	Max	Unit
Maximum Input Power (Electrical)	RF port AC coupled	-	33	dBm
Maximum Input Power (Optical)	CW	-	25	dBm
Operating Case Temperature	-	- 55	+ 85	°C
Storage Temperature	-	- 55	+ 85	°C
Operating Humidity	-	5	85	%

Mechanical Outline



* All dimension measured in mm.

Ordering Information

103076100010

PM0.2-1060-XT, 1060 nm 0.2 GHz LiNbO₃ Phase Modulator
(Corning PM98-U25D (PM980), > 1.5 m, 900 μm PMF/PMF loose tube fiber)

103076100011

PM2.5-1060-XT, 1060 nm 2.5 GHz LiNbO₃ Phase Modulator
(Corning PM98-U25D (PM980), > 1.5 m, 900 μm PMF/PMF loose tube fiber)

103076100012

PM10-1060-XT, 1060 nm 10 GHz LiNbO₃ Phase Modulator
(Corning PM98-U25D (PM980), > 1.5 m, 900 μm PMF/PMF loose tube fiber)



Brochure version: Jan, 2025

Every effort has been made to ensure the accuracy of the information contained in this catalog at the time of publication. As part of our policy of continuous product improvement, we reserve the right to change specifications at any time. For the most up-to-date information, please refer to our website.

www.fiber-resources.com