Fiber Optical Phase Modulator

10 MHz, 10 GHz, 1550 nm

DATASHEET

Return to the Webpage

The LNPM is a high-performance, fiber-coupled phase modulator with operating frequencies ranging from DC to 10 GHz, covering the C-band wavelength. It is constructed using optical waveguides on X-cut $LiNbO_3$ material and is coupled with polarization-maintaining input and output fibers. We offer two versions of low frequency 10MHz and high frequency 10GHz.

Note: This component is intended for OEM system integration and is not designed for standalone laboratory use. Units supplied without a protective benchtop enclosure are provided without warranty, as they are susceptible to damage from improper handling, installation, or operation.

Specifications

Parameter	Min	Typical	Max	Unit
Input Optical Power			100	mW
Operating Wavelength	1525		1570	nm
Insertion Loss		3	4	dB
Polarization Extinction Ratio	20			dB
Optical Return Loss	40			dB
S21Bandwidth	7	8		GHz
S11 Return Loss	-9			dB
RF Vπ @ 1 GHz		7.2	8	V
RF Input Power			25	Vpp
Impedance		50		Ω
Operating Temperature	0		70	°C
Storage Temperature	-40		80	°C
Operating Humidity	0		90	%

Features

- X-cut LiNaO3 Waveguide
- High Polarization Extinction Ratio
- High Optical Power Handling
- PM Input & Output

Applications

- Coherent Communications
- Optical Chirping
- Optical Sensing
- FM Spectroscopy
- Frequency Shifting
- Laser Linewidth Broadening

RoHS COMPLIANT

Rev 07/09/26

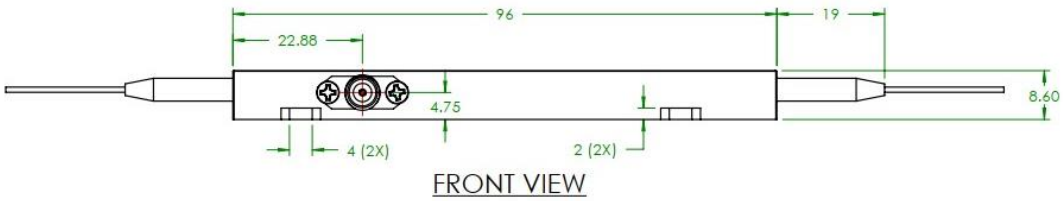
P +1 781-935-1200 E sales@agiltron.com W www.agiltron.com

Fiber Optical Phase Modulator

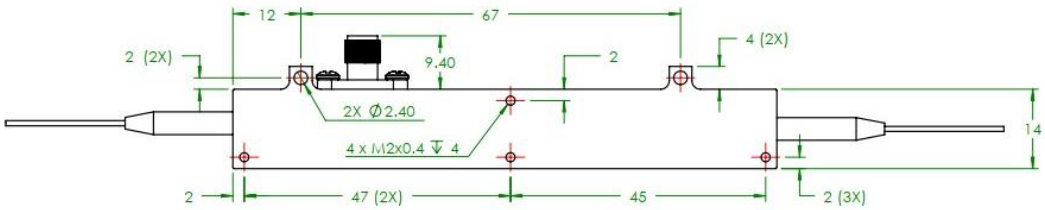
10 MHz, 10 GHz, 1550 nm

DATASHEET

Dimensions (mm) – SM28 Output



FRONT VIEW



BOTTOM VIEW

Unit: mm

*Product dimensions may change without notice. This is sometimes required for non-standard specifications.

Electrical Connection

PIN	Symbol	Description
1	-	N/A
2	-	N/A
3	-	N/A
4	-	N/A
5	-	N/A
6	-	N/A
7	-	N/A
RF	RF connector*	2.92 mm female

Ordering Information (Part Number)

	2	1	☐	☐	☐	☐	☐	☐	☐
Prefix	**Configuration**		**Wavelength**	**Frequency**	**Input Fiber**	**Output Fiber**	**Cable**	**Fiber Length**	**Connector[1]**
LNPM-	Phase = 2		1525 - 1570nm = 2	10GHz = 1 5GHz = 5 10MHz = 2	PM1550 = 5	SM28 = 1 PM1550 = 5	0.9mm Tube = 1	0.5m = 1 Special = 0	Non = 1 FC/APC= 3 FC/PC = 2 Special = 0

[1]. The default connector configuration uses fiber with 0.9 mm buffer protection. The connector cannot be installed directly onto bare fiber because the bare fiber is prone to damage during shipping. However, the connector can be assembled on bare fiber if a 3 cm protective loose tube is added for reinforcement. The customer may remove this protective tube after testing. The optical power handling of a standard connector is less than 0.5 W for SMF-28 fiber and decreases further for smaller-core fibers.

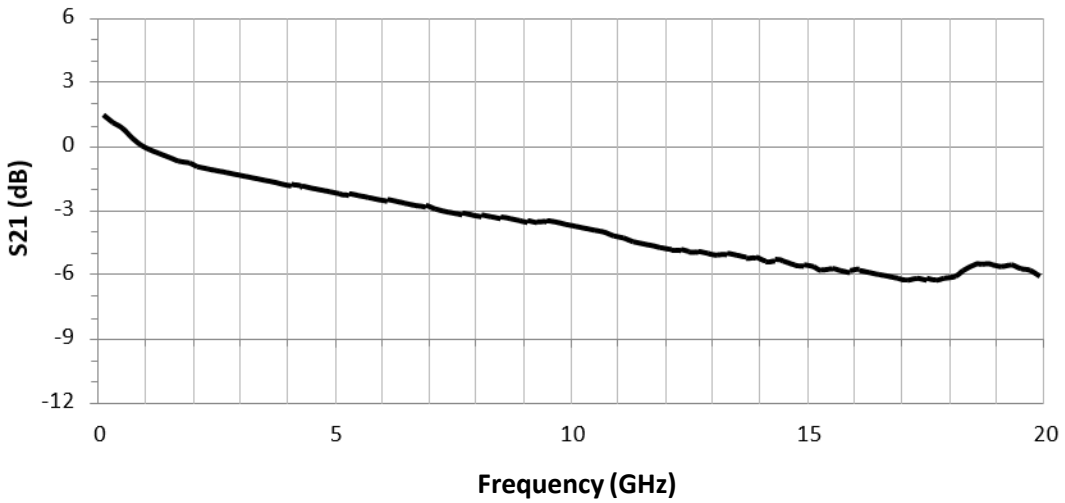
P +1 781-935-1200 E sales@agiltron.com W www.agiltron.com

Fiber Optical Phase Modulator

10 MHz, 10 GHz, 1550 nm

DATASHEET

Typical EO Response



Application Notes

Fiber Core Alignment
Note that the minimum attenuation for these devices depends on excellent core-to-core alignment when the connectors are mated. This is crucial for shorter wavelengths with smaller fiber core diameters that can increase the loss of many decibels above the specification if they are not perfectly aligned. Different vendors' connectors may not mate well with each other, especially for angled APC.

Fiber Cleanliness
Fibers with smaller core diameters (<5 μm) must be kept extremely clean, contamination at fiber-fiber interfaces, combined with the high optical power density, can lead to significant optical damage. This type of damage usually requires re-polishing or replacement of the connector.

Maximum Optical Input Power
Due to their small fiber core diameters for short wavelength and high photon energies, the damage thresholds for device is substantially reduced than the common 1550nm fiber. To avoid damage to the exposed fiber end faces and internal components, the optical input power should never exceed 20 mW for wavelengths shorter 650nm. We produce a special version to increase the how handling by expanding the core side at the fiber ends.

P +1 781-935-1200 E sales@agiltron.com W www.agiltron.com

Vp vs Frequency