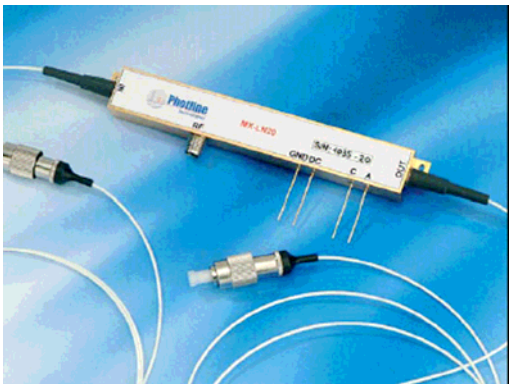
Lithium Niobate 10&20 Gb/s Intensity Modulators

KGEOM-MX-LN-10/20

Description



The KGEOM-MX-LN series of intensity modulators is a complete family of high performance modulators designed for integration in transmission systems and modules at 10 Gb/s or 20 Gb/s. These modulators are built with titanium in-diffused lithium niobate waveguides that offer long-term stability and temperature independent performance.

KGEOM-MX-LN series boasts a chirp-free x-cut design which makes these modulators ideal for long and ultra-long haul transmission. Whether for point to point or for Dense Wavelength Division Multiplexing (DWDM) optical transmissions, these modulators operate equally well with return-to-zero (RZ), non return-to-zero(NRZ) and duobinary modulation formats.

Features

- Extended bandwidth for efficient FEC implementation and 12.5 Gb/s effective bit rate (KGEOM-MX－LN-10) or 25 Gb/s bit rate (KGEOM-MX-LN-20)
- SONET OC-192 and SDH STM-64 compatible (KGEOM-MX-LN-10)
- Optimized for NRZ and RZ modulation schemes
- Broad wavelength range for DWDM transmission; Work in C and L bands
- Bias electrode separated from RF input for easy implementation (no need for bias T)
- Low drive voltage

Options

- Internal monitoring photodiode
- Choice of input and output fibers
- 1300 nm version
- CMD model with integrated RF driver
- MXPE model with very high extinction ratio for specific applications

Related Equipments

- Optimized external RF drivers :KGDR-GA series
- Bias Voltage Controller : KGMBC-1000
- KGModBox’s

北京市海淀区中关村大街 11 号 100080 Tel: 010-68470780 Fax: 010-68470783
网址：www.conquer-oc.com

Specifications

Electrical		Min	Typ	Max
V~ DC electrodes	V		6.5	7
KGEOM-MX-LN-10 V~ RF electrodes @ 50 kHz	V		5.1	5.5
KGEOM-MX-LN-10 V~ RF electrodes @ 10 Gb/s PRBS	V		5.5	6
KGEOM-MX-LN-20 V~ RF electrodes @ 20 GHz	V		7.5	8
KGEOM-MX-LN-10 electro-optic bandwidthS_{21}@-3 dB	GHz	10	12	
KGEOM-MX-LN-20 electro-optic bandwidthS_{21}@-3 dB	GHz	18	20	
Ripple	dB		0.5	1
Electrical return lossS_{11}0-20 GHz	dB		-12	-10
Input resistance RF connector	Ω		40	
Input resistance DC connector	Ω		>1 M	
Internal photodiode responsivity (ref: input power)(1)	A/W	0.015	0.025	0.035

Optical				
Crystal	Lithium Niobate X-Cut Y-Prop			
Waveguide process	Titanium indiffusion			
Insertion loss	dB		-4	-5
Optical return loss	dB		<-40	
Wavelength dependent loss (1480-1600 nm)	dB		0.5	1
DC extinction ratio	dB	20	22	
KGEOM-MX-LN-10 dynamic extinction ratio @ 10 Gb/s PRBS NRZ	dB	13	14	
Chirp parameter		-0.1	0	0.1
KGEOM-MX-LN-10 BER power penalty @ 850 ps/nm, 10 Gb/s PRBS	dB	1.1	1.2	1.3
Extinction ratio of internal photodiode(1)	dB		3	6

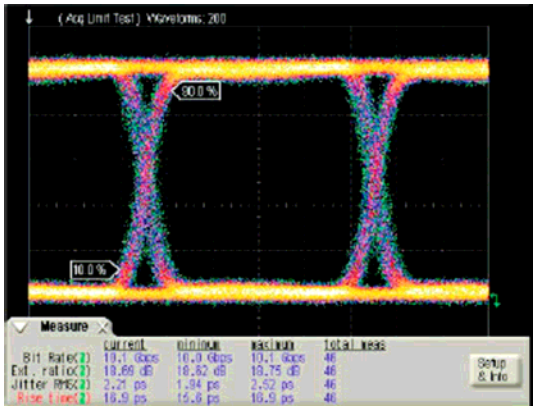
Maximum ratings	
Maximum voltage on DC input	±20 V
Maximum RF input power	+28 dBm
Maximum optical input power	+20 dBm

Environmental	
Operating temperature	0° C to +70° C
Storage temperature	-40° C to +85° C

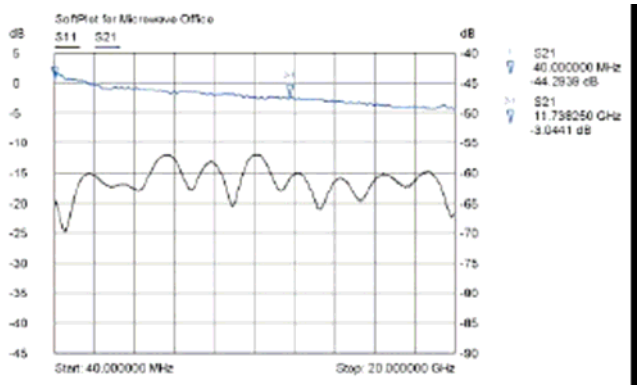
Interfaces	
Input fiber	Polarization maintaining ,SM-15-P-8/125UV/UV-400 length : 1.5 meter, buffer diameter : 900 μm
Output fiber	Single mode type ,SMF-28 length : 1.5 meter, buffer diameter : 900 μm
Output fiber (option)	Polarization maintaining ,SM-15-P-8/125UV/UV-400 length : 1.5 meter, buffer diameter : 900 μm
Package size	100 x 15 x 9.5 mm
Input RF connector	Wiltron Female K
DC connectors	pin feed through diameter 1.0 mm
Photodiode connectors	pin feed through diameter 1.0 mm

(1) : when option internal photodiode is selected

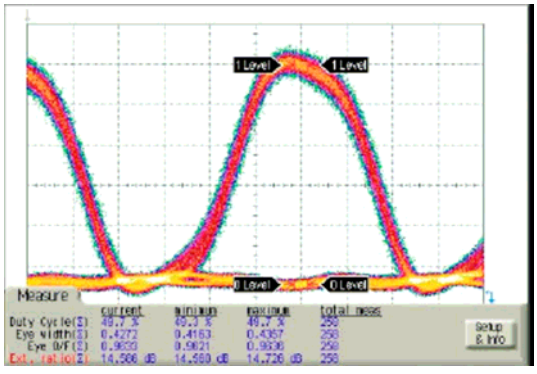
Typical curves



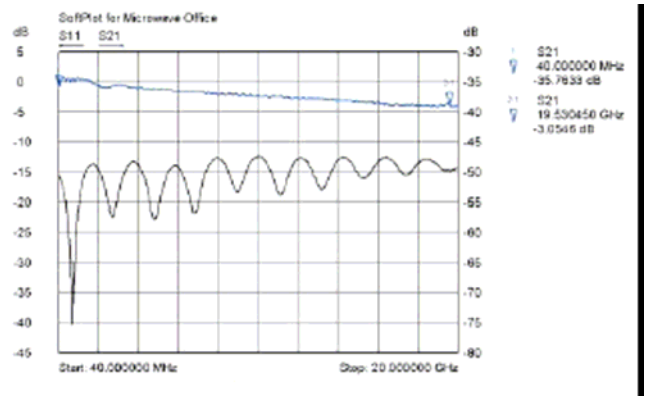
10Gb/s NRZ eye diagram



KGEOM-MX-LN-10 electro-optic bandwidth

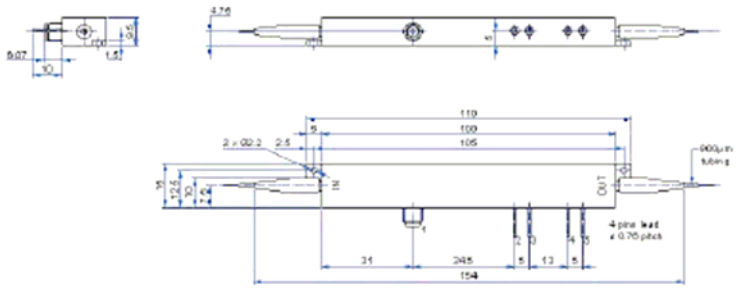


10 Gb/s RZ eye diagram



KGEOM-MX-LN-20 electro-optic bandwidth

Package footprint



1 RF INPUT
2 GROUND
3 BIAS INPUT
4 PHOTODIODE CATHODE
5 PHOTODIODE ANODE

dimensions in mm

Ordering information

KGEOM-MX-LN-BW-XX-Y-Z-AB-CD

BW	10 bandwidth ≥12 GHz ; 20 bandwidth ≥18 GHz
XX	00 no photodiode; PD internal monitoring photodiode
Y	input fiber : P polarization maintaining; S standard single mode
Z	output fiber : P polarization maintaining; S standard single mode
AB	input connector : 00 bare fiber; FA : FC/APC; FC : FC/SPC
CD	output connector : 00 bare fiber; FA : FC/APC; FC : FC/SPC