

10GHz 1064 Electro-Optic Intensity Modulator IM-1064-10G series

Overview

IM-1064-10G is used for optical signal intensity modulation and laser pulse shaping. This device is composed of a high polarization extinction ratio (PER) polarizer, an integrated push-pull electro-optic Mach-Zander interferometer and an integrated electro-optical DC bias controller, suitable in pulse-laser and high-power laser systems. Based on Lithium Niobate (LiNbO_3) material, IM-1064-10G is fabricated with optical waveguides using High Temperature Proton Exchange (HTPE) and the velocity-matched electrodes for high-frequency region. The IM-1064-10G is highly reliable in performance with on-off extinction ratio (ER) exceeding 22dB. It operates in wide temperature range with extended life time in comparison with other competing technologies such as InP and silicon photonics.

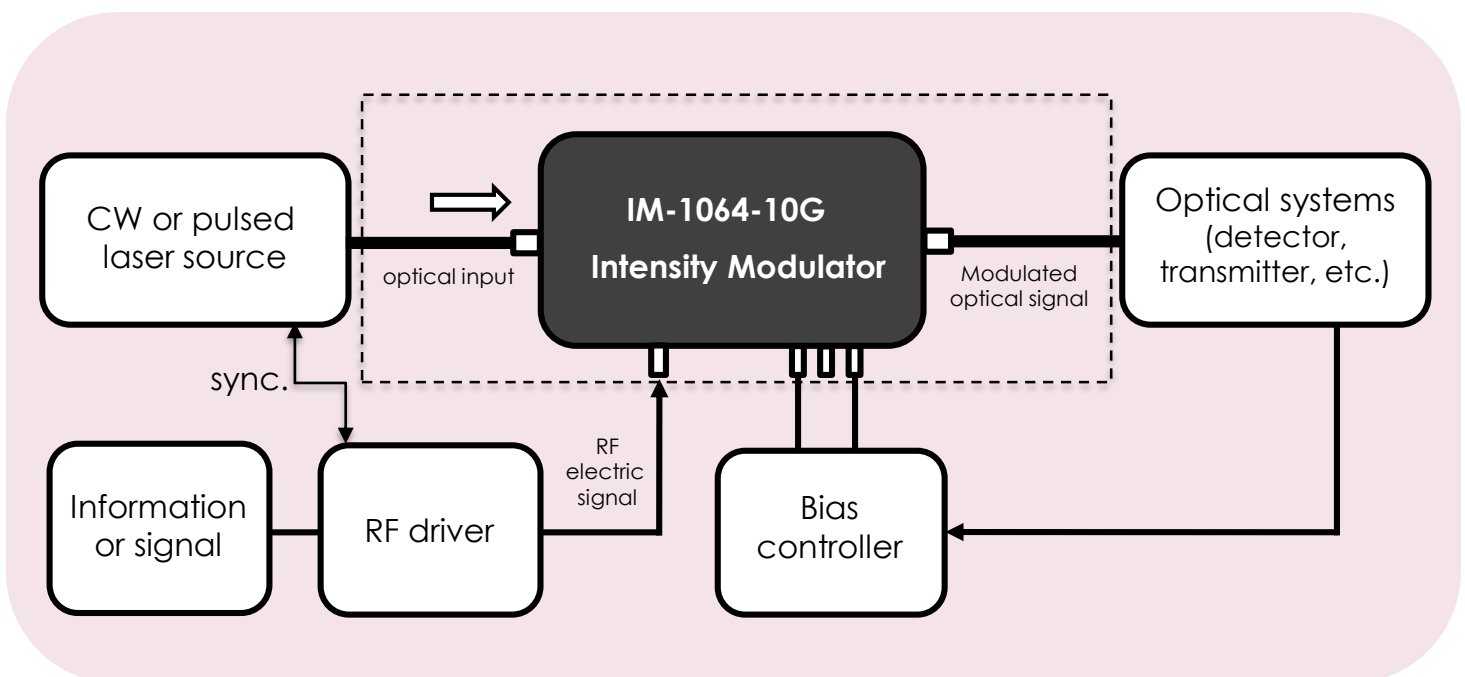
Features

- 1064 \pm 30 nm operation
- EO bandwidth (-3dB)
 > 10 GHz, Max. to 20GHz
- Insertion loss < 4.5 dB
- V_{π} (RF port, at 100 kHz) < 4 V
- Push-pull electrode design
- Polarization extinction ratio > 60dB

Applications

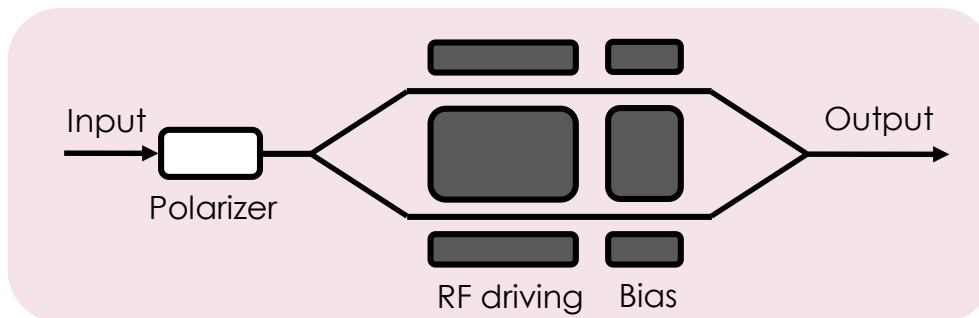
- High-power laser, MOPA laser
- Pulse shaping
- Pulse picking
- High-frequency optical chopping
- Short pulse generation
- Analog transmission link
- Delay lines telemetry systems
- Free-space optical communication, FSOC

Application Diagram



Specifications			
Model	IM-1064-10G-P	IM-1064-10G-A	IM-1064-10G-S
Substrate	X-cut, Y-propagation Lithium Niobate		
Operation wavelength	1060 ± 20 nm		
Input optical power	70 mW (typ.), 100 mW (max.)		
Chirp value	≤ 0.2 (zero chirp design)		
Chip insertion loss	≤ 3.5 dB	≤ 4.0 dB	≤ 4.5 dB
V _π (RF port, 100kHz)	≤ 3.5 V	≤ 4.0 V	≤ 4.5 V
On-off extinction ratio	≥ 20 dB	≥ 22 dB	≥ 20 dB
EO Bandwidth (RF Port)	≥ 10 GHz, Max. to 20GHz		
Polarization extinction ratio	≥ 60dB		
Optical return loss	≤ -45 dB		
Return Loss (RF Port)	≤ -10 dB (DC to 10 GHz)		
RF Input Power	26 dBm max.		
Impedance (RF Port)	50 ± 5 Ω		
V _π (Bias port)	4.0 V (at 100kHz)		
RF electrode type	Push-pull		
Chip polished angle	6 ± 0.5 degree		
Chip dimension	61 mm (L) x 2 mm (W) x 1 mm (H), tolerance 10 %		
Operating Temperature	- 30 °C ~ + 70 °C		
Storage Temperature	- 50 °C ~ + 80 °C		

Mechanical Drawing



Customization

- Special customization for on-off ER higher than 30dB
- ODM Customization for other EO modulator design, including polarizer, dual-phase modulators, Y splitter/combiner and anti-reflection