

OPP-LAB

OPP-LAB-NIR

Optical Pulse Picker LAB in the Near Infra-Red

The Exail OPP-LAB-NIR is a family of Optical Pulse Picker based on NIR-MX LiNbO₃ Mach-Zehnder modulators and proprietary bias controller. The module is available at 1030 nm, or 1053 nm and 1064 nm. It allows from a continuous laser source to generate an optical modulated signal, and from a pulse seeder source to pulse pick and reduce its repetition rate. The short optical pulse generation or picking is based on a large bandwidth and high extinction ratio external LiNbO₃ NIR-MX modulator. For superior extinction ratio above 30 dB; the OPP-LAB embeds cascaded modulators.

An innovative automatic bias control circuitry (MBC) guarantees bias point stability over time whatever the power and the mode of the input optical signal, whether continuous or pulsed. This MBC is intended to operate at a chosen wavelength of 1030 nm or 1053 nm or 1064 nm to be specified.



FEATURES

- Turn-key optical pulse picker
- High optical stability over time
- Low rise & fall times
- Very high extinction ratio
- Proven solution

APPLICATIONS

- Pulse picking and optical modulation
- Laser operation

PERFORMANCE HIGHLIGHTS

Parameter	Nominal
Operating wavelength	1030 nm / 1053 nm / 1064 nm
Pulse contrast	30 dB / 60 dB
Insertion loss	7 dB / 13 dB

Ordering Information:

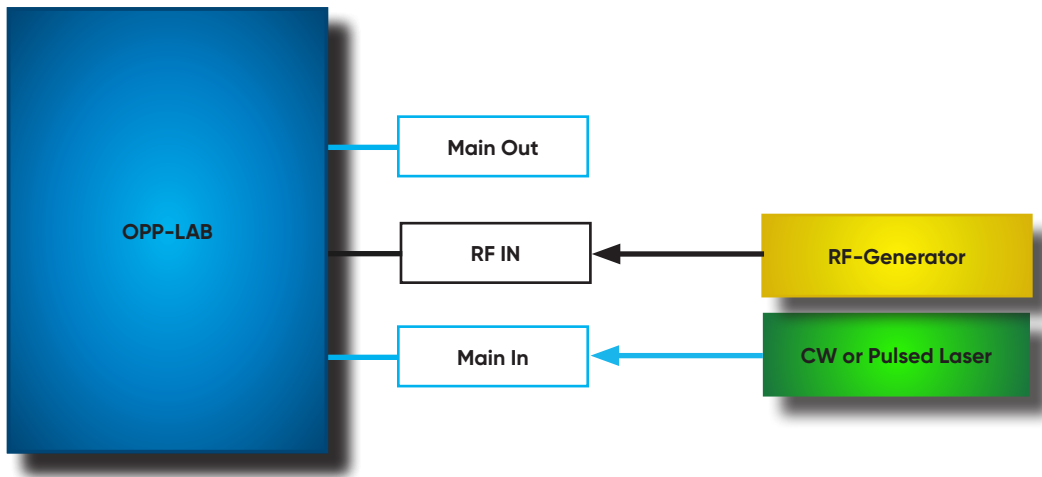


800 Village Walk #316
Guilford, CT 06437
Ph: 203-401-8093

Email orders to: sales@xsoptix.com
Fax orders to: 800-878-7282

OPP-LAB-NIR

FUNCTIONAL BLOCK DIAGRAM



The OPP-LAB integrates:

- a modulator set to ensure a very high optical pulse extinction ratio and flexible pulse shaping,
- an automatic Modulator Bias Control circuitry (MBC) to guarantee high extinction ratio stability over time.

The OPP-LAB is connected to an external optical laser source and an external electrical generator.

OPP-LAB-NIR

ELECTRICAL INPUT SPECIFICATIONS

Parameter	Symbol	Condition	Min	Typ	Max	Unit
RF signal type	-	-	Pulse or Other			
RF impedance	-	-	-	50	-	Ω
RF amplitude ⁽¹⁾	-	-	-	5	-	V
RF duty cycle	-	For maximum pulse contrast	-	-	1	%
MBC trigger voltage	-	TTL	-	-	3.3	V
MBC trigger frequency	-	-	-	-	1	kHz
Power supply	DC	-	-	12	-	V

⁽¹⁾ Corresponding to the modulator V_{π} RF value.

OPTICAL INPUT SPECIFICATIONS

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Mode	-	-	Continuous or Pulse			
Wavelength	-	-	980	1064	1150	nm
Side mode suppression ratio	SMSR	-	30	-	-	dB
Polarisation	-	-	Linear and controlled			
Input power	-	CW or average power	0	-	100	mW

OPP-LAB OPTICAL SPECIFICATIONS

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Electro-optics bandwidth	-	-	-	20	-	GHz
Rise/Fall time	-	Achieved with fast electrical pulse	-	20	-	ps
Static extinction ratio ⁽²⁾	SER	OPP-LAB-NIR-30dB	30	35	-	dB
		OPP-LAB-NIR-60dB	50	60	-	dB
Extinction ratio stability ⁽³⁾	-	-	-	1	-	%/H
Insertion loss ⁽⁴⁾	IL	OPP-LAB-NIR-30dB	-	7	-	dB
		OPP-LAB-NIR-60dB	-	13	-	dB
Polarisation extenction ratio	PER	-	+20	-	-	dB
Contra-propagative signal ⁽⁵⁾	-	-	-	-40	-	dBm
Optical return loss	ORL	-	-	-45	-40	dB
MBC dither frequency	Fdth	-	400	1000	1400	Hz

⁽²⁾ Output static extinction ratio when duty-cycle < 1 % @1030 nm or @1053 nm or @1064 nm.

⁽³⁾ Measured over 24 hours.

⁽⁴⁾ When the modulator is set at its maximum transmission.

⁽⁵⁾ From input port.

OPP-LAB-NIR

INTERFACES AND DIMENSIONS

FRONT PANEL

RF input connector	RF In - SMA Female - 50 Ω
Optical input connector	Main In - FC/APC - PM fiber
Optical output connector	Main Out - FC/APC - PM fiber

REAR PANEL

Power supply (12V - 2A)	DC In - Jack male 2 mm
MBC dither disable	Trig In - BNC
USB	USB - B type
Dimensions	220 mm x 220 mm x 52 mm

ENVIRONMENT

Parameter	Min	Typ	Max	Unit
Operating temperature	+15	-	+35	°C
Storage temperature	-20	-	+50	°C

ABSOLUTE MAXIMUM RATINGS

Parameter	Min	Typ	Max	Unit
Optical input power (Continuous or average)	-	-	100	mW
Electrical input power	-	-	+28	dBm

ORDERING INFORMATION

Operating wavelength:

1030 (1030 nm)

1053 (1053 nm)

1064 (1064 nm)

Pulse contrast:

30 (30 dB)

60 (60 dB)

OPP-LAB-NIR-□nm-□dB

Exail reserves the right to change, at any time and without notice, the specifications, design, function or form of its products described herein.

contact.photonics@exail.com | www.exail.com

Europe +33 1 30 08 87 43 | Americas +1 508 745 3487 | APAC +65 6747 4912

exail