

1550 nm, 40 GHz Intensity Modulator, PM Output, GPPO Connectors

The Optilab IML-1550-40-PM-G Intensity Modulator is designed for analog modulation of up to 40 GHz for satellite links, antennae remoting, and RF over Fiber. It is an ultra low drive voltage lithium modulator with excellent stability in a biased circuit, operating from 1530 nm to 1610 nm. It has an operating temperature tolerance ranging from -30 °C to +60 °C. With low insertion loss, and ultra low RF drive voltage, IML-1550-40-PM-G provides optical transmission performance for analog modulation system. The IML-1550-40-PM-G features a GPPO connector for RF input, three lead pins for bias input and photodiode (Anode and Cathode), and PM input and output fiber. Contact Optilab for more information.

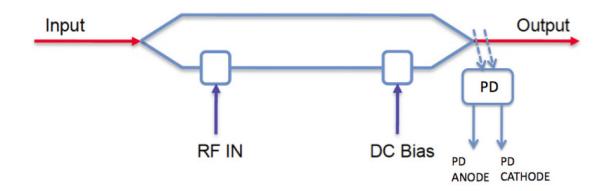
Features

- > Excellent stability in a biased circuit
- ➤ 1530 nm to 1610 nm operating wavelength
- ➤ Low insertion loss < 4.5 dB
- ➤ Ultra low drive voltage 2.0 V
- > PM input and output fiber
- ➤ Built in monitor PD
- ➤ Customizable options:
 - Temperature Qualified (-55 °C to +75 °C)

Applications

- ➤ Analog Transmission up to 40 GHz
- ➤ Satellite link
- ➤ Antenna remote
- > RF over Fiber
- ➤ 40 Gb/s systems
- ➤ Active mode laser

Functional Diagram



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OPTIONS

IML-1550-40-PM-G-XX

XX TQ: Temperature Qualified

TECHNICAL INFO

For technical info and support:

sales@optilab.com

www.optilab.com

WEB ORDER

To order, please click below:



Optilab Advantage

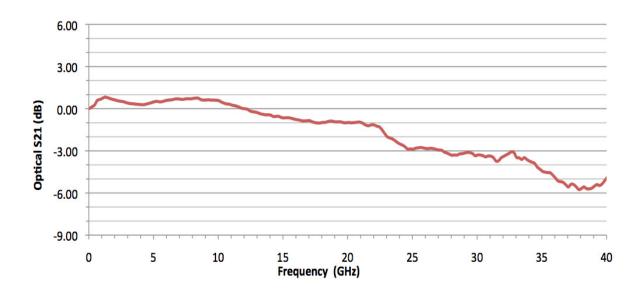
- ➤ Innovation
- > Performance
- ➤ Quality
- ➤ Customization
- ➤ Warranty

Input optical power		
Operating wavelength Chirp Value (± 0.2 (zero chirp design) Insertion Loss (4.0 dB typ.; 4.5 dB max.) Extinction Ratio Optical return loss S21 Bandwidth S11 Return Loss (5 - 10 dB @ up to 20 GHz (15 V typ. @ 10 GHz; 4.3 V typ. @ 30 GHz S7 V typ. @ 10 GHz; 4.3 V typ. @ 30 GHz S8 Input power (17 dBm max.) Vπ (RF Port) (2.0 V typ. @ 10 GHz; 4.3 V typ. @ 30 GHz RF Input power (3.0 V @ 1 kHz) PD Responsivity (3.0 V @ 1 kHz) PD Responsivity Analog Link Performance IIP3 @ 7 GHz 1 dB Conpression Point @ 10 GHz Mechanical Specifications Operating Temperature (standard) Operating Temperature (standard) Operating Temperature (TQ version) Storing Temperature (5 to +90 °C Operating Humidity O% to 90% Relative Humidity Input Fiber Type PANDA - PM Output Fiber Type PANDA - PM Input Connector PM FC/APC or FC/UPC Output Connector PM FC/APC or FC/UPC Output Connector PM FC/APC or FC/UPC Material LiNbO3 Crystal Orientation X-cut, y-propagating Waveguide Process Bias Port Connector Single Lead pin RF Port connectors GPPO	General Specifications	
Chirp Value	Input optical power	100 mW max.available
Insertion Loss Extinction Ratio Optical return loss \$\frac{5}{2}\$ dB min. Optical return loss \$\frac{5}{2}\$ dB min. \$\frac{5}{2}\$ dB min. \text{Solution Ratio} \$\frac{5}{2}\$ dB myp. \text{Solution Ratio} \text{Solution Ratio} \text{Vm (RF Port)} \$\frac{2}{2}\$ over \text{Vp. @ 10 GHz} \text{Vp. @ 10 GHz} \text{Vp. @ 30 GHz} \text{Vp. @ 30 GHz} \text{Vp. @ 30 GHz} \text{Vm (RF Port)} \text{Vm (RF Port)} \$\frac{7}{2}\$ dBm max. \text{Vm (Bias Port)} \text{Vm (Bias Port)} \$\frac{7}{2}\$ dBm max. \text{Vm (Bias Port)} \text{Vm (Bias Port)} \$\frac{7}{2}\$ dBm max. \text{Vm (Bias Port)} \text{Vm (Bias Port)} \$\frac{7}{2}\$ dBm max. \text{Vm (Bias Port)} \text{Vm (Bias Port)} \$\frac{7}{2}\$ dBm max. \text{Vm (Bias Port)} \text{Vm (Bias Port)} \text{Vp. @ 10 GHz} \text{Vm (RF Port)} \text{Vm (RF Port)} \text{Q 1 M Hz} \text{Vm (Bias Port)} \text{Q 1 M Hz} \text{Vm (Bias Port Connector)} \text{Q 1 M Hz} \text{Q 1 M Hz}	Operating wavelength	1530 to 1610 nm
Extinction Ratio Detical return loss \$\leq -45 \ dB\$ \$\leq 25 \ landwidth \$\leq 20 \ V \typ. \leq 10 \ GHz \text{Vm (RF Port)} \$\leq -10 \ dB \leq \text{up to 20 \ GHz} \text{Vm (RF Port)} \$\leq -10 \ dB \leq \text{up to 20 \ GHz} \text{Vm (RF Port)} \$\leq -2.0 \ V \typ. \leq 10 \ GHz; \$\leq -5.5 \ V \typ. \leq 30 \ GHz \text{RF Input power} \$\leq 27 \ dBm \text{max}. \text{Vm (Bias Port)} \$\leq -3.0 \ V \leq 1 \ kHz \text{PD Responsivity} \$\leq 0.05 \pm 0.02 \text{mA/mW} \text{Analog Link Performance} \text{IIP3 (\leq 07 \ GHz)} \$\leq 25 \ dBm \typ. \text{1 dB Conpression Point (\leq 10 \ GHz)} \$\leq 8.0 \ dBm \typ. \text{Mechanical Specifications} \text{Operating Temperature (standard)} \$\leq -30 \circ \text{to +60 \circ C} \text{Operating Temperature (rQ version)} \$\leq -55 \circ \text{to +75 \circ C} \text{Storing Temperature} \$\leq -60 \circ \text{to +90 \circ C} \text{Operating Humidity} \text{Input Fiber Type} \$\text{PANDA - PM} \text{Output Fiber Type} \text{PANDA - PM} \text{Input Connector} \$\text{PM FC/APC or FC/UPC} \text{Output Connector} \text{PM FC/APC or FC/UPC} \text{Material} \text{LiNb03} \text{Crystal Orientation} \text{X-cut, y-propagating} \text{Waveguide Process} \text{Ti-indiffused} \text{Bias Port Connector} \text{PD Monitor Port} \$\text{2 lead pin} \text{RF Port connectors} \text{GPPO}	Chirp Value	<± 0.2 (zero chirp design)
Optical return loss≤ - 45 dBS21 Bandwidth30 GHz typ.S11 Return Loss≤ -10 dB @ up to 20 GHzVπ (RF Port)2.0 V typ.@ low frequency 2.5 V typ. @ 10 GHz; 4.3 V typ. @ 30 GHzRF Input power27 dBm max.Vπ (Bias Port)< 3.0 V @ 1 kHz	Insertion Loss	<4.0 dB typ. ; 4.5 dB max.
S21 Bandwidth30 GHz typ.S11 Return Loss≤ -10 dB @ up to 20 GHzVπ (RF Port)2.0 V typ.@ low frequency 2.5 V typ. @ 10 GHz; 4.3 V typ. @ 30 GHzRF Input power27 dBm max.Vπ (Bias Port)< 3.0 V @ 1 kHz	Extinction Ratio	≥ 25 dB min.
S11 Return Loss ≤ -10 dB @ up to 20 GHz 2.0 V typ.@ low frequency 2.5 V typ. @ 10 GHz; 4.3 V typ. @ 30 GHz RF Input power 27 dBm max. Vπ (Bias Port) PD Responsivity 0.05 ± 0.02 mA/mW Analog Link Performance IIP3 @7 GHz 1 dB Conpression Point @10 GHz Mechanical Specifications Operating Temperature (standard) Operating Temperature (TQ version) Storing Temperature -60 °C to +90 °C Operating Humidity Input Fiber Type PANDA - PM Output Fiber Type PANDA - PM Input Connector PM FC/APC or FC/UPC Output Connector Material LiNbO3 Crystal Orientation V= OPPO RF Port connectors GPPO	Optical return loss	≤- 45 dB
Vπ (RF Port)2.0 V typ.@ low frequency 2.5 V typ. @ 10 GHz; 4.3 V typ. @ 30 GHzRF Input power27 dBm max.Vπ (Bias Port)< 3.0 V @ 1 kHz	S21 Bandwidth	30 GHz typ.
Vπ (RF Port)2.5 V typ. @ 10 GHz; 4.3 V typ. @ 30 GHzRF Input power27 dBm max.Vπ (Bias Port)< 3.0 V @ 1 kHz	S11 Return Loss	≤ -10 dB @ up to 20 GHz
Vπ (Bias Port) < 3.0 V @ 1 kHz	Vπ (RF Port)	2.5 V typ. @ 10 GHz;
PD Responsivity Analog Link Performance IIP3 @7 GHz 1 dB Conpression Point @10 GHz Mechanical Specifications Operating Temperature (standard) Operating Temperature (TQ version) Storing Temperature -60 °C to +90 °C Operating Humidity Input Fiber Type PANDA - PM Output Fiber Type Input Connector Output Connector Material Crystal Orientation Waveguide Process Bias Port Connector PD Monitor Port RF Port connectors O.05 ± 0.02 mA/mW A.005 ± 0.02 mA/mW A.004 mtyp. 25 dBm typ. 25 dBm typ. 30.06 ± 0.02 mA/mW A.004 mtyp. 40.06 °C CO C to +60 °C CO C to +90 °C Overating Humidity O% to 90% Relative Humidity PANDA - PM PANDA - PM Input Connector PM FC/APC or FC/UPC Output Connector PM FC/APC or FC/UPC Material LiNbO3 Crystal Orientation X-cut, y-propagating Waveguide Process Ti-indiffused Bias Port Connector Single Lead pin PD Monitor Port 2 lead pin RF Port connectors	RF Input power	27 dBm max.
Analog Link Performance IIP3 @7 GHz	Vπ (Bias Port)	< 3.0 V @ 1 kHz
IIP3 @7 GHz 1 dB Conpression Point @10 GHz Mechanical Specifications Operating Temperature (standard) Operating Temperature (TQ version) Storing Temperature -60 °C to +90 °C Operating Humidity Input Fiber Type Output Fiber Type PANDA - PM Input Connector Output Connector Material Crystal Orientation Waveguide Process Bias Port Connector PD Monitor Port RF Port connectors 25 dBm typ. 8.0 dBm typ. 9.0 °C to +60 °C 0 to +50 °C 0 to +50 °C 0 to +75 °C 8.0 dBm typ. 9.0 °C 0 vo +50 °C 0	PD Responsivity	0.05 ± 0.02 mA/mW
1 dB Conpression Point @10 GHz Mechanical Specifications Operating Temperature (standard) Operating Temperature (TQ version) Storing Temperature -60 °C to +90 °C Operating Humidity O% to 90% Relative Humidity Input Fiber Type PANDA - PM Output Fiber Type Input Connector Output Connector PM FC/APC or FC/UPC Material LiNbO3 Crystal Orientation Waveguide Process Bias Port Connector PD Monitor Port Single Lead pin RF Port connectors GPPO	Analog Link Performance	
Mechanical Specifications Operating Temperature (standard) -30 °C to +60 °C Operating Temperature (TQ version) -55 °C to +75 °C Storing Temperature -60 °C to +90 °C Operating Humidity O% to 90% Relative Humidity Input Fiber Type PANDA - PM Output Fiber Type PANDA - PM Input Connector PM FC/APC or FC/UPC Output Connector PM FC/APC or FC/UPC Material LiNbO3 Crystal Orientation X-cut, y-propagating Waveguide Process Ti-indiffused Bias Port Connector Single Lead pin PD Monitor Port 2 lead pin RF Port connectors GPPO	IIP3 @7 GHz	25 dBm typ.
Operating Temperature (standard) Operating Temperature (TQ version) -55 °C to +75 °C Storing Temperature -60 °C to +90 °C Operating Humidity O% to 90% Relative Humidity Input Fiber Type PANDA - PM Output Fiber Type PANDA - PM Input Connector PM FC/APC or FC/UPC Output Connector Material LiNbO3 Crystal Orientation X-cut, y-propagating Waveguide Process Bias Port Connector Single Lead pin PD Monitor Port RF Port connectors GPPO	1 dB Conpression Point @10 GHz	8.0 dBm typ.
Operating Temperature (TQ version) -55 °C to +75 °C Storing Temperature -60 °C to +90 °C Operating Humidity 0% to 90% Relative Humidity Input Fiber Type PANDA - PM Output Fiber Type PANDA - PM Input Connector PM FC/APC or FC/UPC Output Connector PM FC/APC or FC/UPC Material LiNbO3 Crystal Orientation X-cut, y-propagating Waveguide Process Ti-indiffused Bias Port Connector Single Lead pin PD Monitor Port 2 lead pin RF Port connectors GPPO	Mechanical Specifications	
Storing Temperature -60 °C to +90 °C Operating Humidity Input Fiber Type Output Fiber Type PANDA - PM Input Connector Output Connector PM FC/APC or FC/UPC Material LiNbO3 Crystal Orientation Waveguide Process Bias Port Connector PD Monitor Port RF Port connectors GPPO	Operating Temperature (standard)	-30 °C to +60 °C
Operating Humidity Input Fiber Type Output Fiber Type PANDA - PM Input Connector Output Connector PM FC/APC or FC/UPC Output Connector Material Crystal Orientation Waveguide Process Bias Port Connector PD Monitor Port RF Port connectors O% to 90% Relative Humidity PM FC/APC or FC/UPC Output Connector PM FC/APC or FC/UPC LiNbO3 Ti-indiffused Single Lead pin PD Monitor Port 2 lead pin GPPO	Operating Temperature (TQ version)	-55 °C to +75 °C
Input Fiber Type Output Fiber Type PANDA - PM Input Connector PM FC/APC or FC/UPC Output Connector Material Crystal Orientation Waveguide Process Bias Port Connector PD Monitor Port RF Port connectors PANDA - PM PM FC/APC or FC/UPC LiNbO3 X-cut, y-propagating Varient Single Lead pin 2 lead pin GPPO	Storing Temperature	-60 °C to +90 °C
Output Fiber Type Input Connector PM FC/APC or FC/UPC Output Connector PM FC/APC or FC/UPC Material LiNbO3 Crystal Orientation Waveguide Process Ti-indiffused Bias Port Connector Single Lead pin PD Monitor Port RF Port connectors GPPO	Operating Humidity	0% to 90% Relative Humidity
Input Connector Output Connector PM FC/APC or FC/UPC Material LiNb03 Crystal Orientation Waveguide Process Bias Port Connector PD Monitor Port RF Port connectors PM FC/APC or FC/UPC LiNb03 X-cut, y-propagating X-indiffused Single Lead pin 2 lead pin GPPO	Input Fiber Type	PANDA - PM
Output Connector PM FC/APC or FC/UPC Material LiNbO3 Crystal Orientation Waveguide Process Bias Port Connector PD Monitor Port RF Port connectors PM FC/APC or FC/UPC LiNbO3 X-cut, y-propagating Ti-indiffused Single Lead pin 2 lead pin GPPO	Output Fiber Type	PANDA - PM
MaterialLiNbO3Crystal OrientationX-cut, y-propagatingWaveguide ProcessTi-indiffusedBias Port ConnectorSingle Lead pinPD Monitor Port2 lead pinRF Port connectorsGPPO	Input Connector	PM FC/APC or FC/UPC
Crystal Orientation X-cut, y-propagating Waveguide Process Ti-indiffused Bias Port Connector Single Lead pin PD Monitor Port 2 lead pin RF Port connectors GPPO	Output Connector	PM FC/APC or FC/UPC
Waveguide Process Bias Port Connector PD Monitor Port RF Port connectors Ti-indiffused Single Lead pin 2 lead pin GPPO	Material	LiNbO3
Bias Port Connector PD Monitor Port RF Port connectors Single Lead pin 2 lead pin GPP0	Crystal Orientation	X-cut, y-propagating
PD Monitor Port 2 lead pin RF Port connectors GPPO	Waveguide Process	Ti-indiffused
RF Port connectors GPPO	Bias Port Connector	Single Lead pin
	PD Monitor Port	2 lead pin
Cabling 900 µm tubing	RF Port connectors	GPPO
	Cabling	900 µm tubing
Dimensions 72 x 12 x 7 mm	Dimensions	72 x 12 x 7 mm



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Typical S21 Bandwidth



Typical S11 Bandwidth

