

Technical Specification for

Modular High Speed Optical Modulator and Bias Controller Systems

A.	High speed Optical modulator system with an inbuilt laser, phase modulator, RF amplifier, power monitor and variable optical attenuator specifications	
Internal Laser		
1	Laser output power	upto 13.5 dBm
2	Wavelength range	C-band (1525 nm - 1565 nm)
3	Tuning accuracy	± 1.5 GHz
4	Intrinsic linewidth	< 20 KHz
5	Back reflection	< -10 dB
6	Side mode suppression ratio	> 50 dB
7	Optical signal to noise ratio	> 50 dB
8	Relative intensity noise (RIN)	< -140 dB/Hz
External Laser Compatibility Option		
9	Wavelength range	1250 nm - 1610 nm
10	Optical input power	Up to 20 dBm
Internal Phase Modulator		
11	EO Bandwidth	≥ 35 GHz
12	Insertion Loss	< 5 dB
13	RF driver voltage	> 5 V

14	Max RF voltage	> 5 V
Internal RF Amplifier		
15	Bandwidth	at least 20 GHz
16	Max RF input	Around 100 mV
17	Max DC input	$\pm 10V$
18	RF output swing	3 - 7 V
19	Low frequency cutoff	100 kHz
20	Electrical return loss	< -10 dB
21	Gain	Up to 30 dB
Internal Power Monitor		
22	Accuracy	± 0.5 dBm at 1550 nm
23	Resolution	0.01 dBm
24	Insertion loss	< 0.2 dB
Internal Variable Optical Attenuator		
25	Insertion loss	< 0.5 dB
26	Response time	1 sec
27	System insertion loss	< 5 dB
28	Quantity	1
B.	Phase modulator (up to 40 GHz) specifications	
1	Operating wavelength range	1525 nm - 1605 nm

2	Insertion loss	< 5 dB
3	Return loss	40 dB
4	Optical input power	Up to 100 mW
5	RF operating frequency	Up to 40 GHz
6	RF input power	> 20 dBm
7	Fibre connectors	Polarization maintaining PANDA fibers at the input and SMF-28 fibers at the output
8	RF connectors	Female 1.85 mm
9	Reflection at RF port	< -10 dB
10	Quantity	2
C.	Modulator bias controller specifications	
1	Operating wavelength range	1525 nm - 1605 nm
2	Optical input power	Up to 100 mW
3	Bias voltage range	±10 V
4	Bias modes	Quad/Peak/Null
5	Dither amplitude range	20 mV - 2 V
6	Dither frequency range	1 - 10 kHz
7	Automatic mode settling time	Up to 5 s
Internal Power Monitor		
9	Accuracy	±0.5 dBm at 1550 nm
10	Resolution	0.01 dBm
11	Insertion loss	< 0.2 dB

Internal Variable Optical Attenuator		
12	Insertion loss	< 0.5 dB
13	Response time	1 sec
14	Quantity	1
<u>D.</u>	Suppliers should provide technical compliance including explanations without fail against each point given in the technical specifications for consideration of the offer.	
<u>E.</u>	Power requirement: As per Indian electrical standards (230V AC, 50 Hz)	
<u>F.</u>	Warranty: Comprehensive warranty for 1 year from the date of installation.	
<u>G.</u>	Parent company should be an established company with a good number of installations (at least 20) and after sales support in India as well.	
<u>H.</u>	Standard configurations will be required. NO CUSTOM BUILT SYSTEMS WILL BE ENTERTAINED.	

(Note: It is mandatory for the bidders to provide the compliance statement in tabular column format along with catalogue page number (comply/not comply) for the Above points with document proof as required. Failing which bidders will be technically disqualified)