BDA Bidirectional Fiber Interface Module **50 – 2500, 3000, 4000, 6000 MHz**

BDA Bidirectional Fiber Interface Module, RFoF

This compact bidirectional (2 way) RF over Fiber (RFoF) transceiver is designed for Transmit/Receive antenna interfaces- applications where both an uplink as well as a downlink are required.

The module employs WDM technology to use only 1 fiber link and supports 50-2500, 3000, 4000 and 6000 MHz. The RFoF link has excellent gain flatness and can be configured to have 0.5dB gain tracking between different links.

- Noise Figure 6 dB with LNA
- Impedance of 50 Ohm. 75 Ohm is optional with similar VSWR, by using SMA/BNC adaptor.
- Gain variation S21 (fo) of ±1 dB for 90° C variation
- Better linearity, excellent gain flatness, and Tx, Rx and Link gain control
- Real-time diagnostic of deployed links through GUI installed on the PC
- LNA 'ON' or 'OFF' is selected by the RFoF user software

For special applications that require temperature stability operation, a unique algorithm supporting 0.5 dB over -200C to +70C may be activated. The RFoF links operate from a flexible DC power from 5 to 12 Volts.

The RF and Optical parameters: link gain, noise figure, P1dB, optical power can be remotely adjusted with help of internal microcontroller that allows for RF and Optical control.

Optional control card for SNMP remote management can be added at a later stage. The built-in LNA is activated through the RFoF configuration software.

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Specifications for Programmable RFoF Bidirectional Transciver (example):

Notes:

LNA 'ON' or 'OFF' is selected by manufacturing, or by using the RFoF user software. Noise Figure, Input P1 dB, Input IP3 and SFDR measured at 1.5GHz, can be selected by 'LNA Off/ON' and Tx Attenuator. 'No Attenuation' is the default for Tx and Rx units. Attenuation values can be selected by the user software.

Connector: Positive center plug OD: 3.5mm, ID: 1.3mm, L: 9mm

Electrical Specifications	LNA "OFF"	LNA "ON"
Frequency Range, MHz	50 - 3000	50 - 3000
Adjustable Link Gain (nominal value), dB	12	42
Attenuator 31 dB (Tx, Rx), dB	0.5	0.5
Gain Flatness, dB	±1.5	±1.5
Input P1 dB, dBm	-3	-33
Noise Figure, dB	23	6.5
SFDR, $dB/Hz^{2/3}$	104	100
Gain Flatness any 36 MHz, dB	±0.25	±0.25
Uncorrected gain variation over temperature, dB	±3.5	±3.5
Corrected gain variation over temperature, dB	±1	±1
Corrected gain tracking between RFoF links, dB	±0.5	±0.5
Maximum Input No damage, dBm	20	20
VSWR Input / Output, dBm	1.7:1	1.7:1
Input / Output impedance, Ohm *75 Ohm is optional with similar VSWR, by using SMA/BNC adaptor	50	50

Optical and Electrical	LNA "OFF"	LNA "ON"
Current consumption of Tx unit (at 5VDC), mA	260	385
Current consumption of Rx unit (at 5VDC), mA	225	225
Laser diode wavelength, µm	1.31 or 1.55	1.31 or 1.55
Optical Power in the fiber, mw	2.3 ±0.5	2.3 ±0.5
LED status indicators (Tx/Rx)	RGB	RGB

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Mechanical and Environmental Parameters	LNA "OFF"	LNA "ON"
Size, in	5.11 x 3.54 x 1.57	5.11 x 3.54 x 1.57
Operating temperature, °C	-20 to +70	-20 to +70
Storage temperature, °C	40 to +85	40 to +85
EMC and Safety*	FCC, CE	FCC, CE

**Safety EN60950-1:2006(2nd); EMC: ETSI EN 300 386 v1.6.1 (2012-04) and FCC CFR-47 part 15 Sub part B.*

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