

**BDA Unidirectional Fiber Interface Module, RFoF**

This compact unidirectional (1 way) RF over Fiber (RFoF) transmitter is designed for conversion of RF signals to optical signals carried over long distances. The Tx unit using an optical transmitter, converts RF to Optical signal and the Rx unit converts back to RF signal. The two units are connected through customer's single mode fiber.

- Noise Figure 6 dB with LNA with MDS  $\sim$ -168 dB/Hz for very low incoming signals
- Impedance of 50 Ohm and 75 Ohm
- Gain variation S21 (fo) of  $\pm$ 1 dB for 90° C variation
- Better linearity,
- Excellent gain flatness
- Tx, Rx and Link gain control
- Real-time diagnostic of deployed links through GUI installed on the PC



The RFoF links operate from a flexible DC power from 5 to 12 Volts. Both the Tx and Rx units includes LNAs and variable attenuators that enable customer to adjust the Noise Figure, Input P1dB, and IP3 with wide dynamic range values. The LNA can be operated through the RFoF software allowing RF input power in the range of -100 dBm/1MHz for wideband applications, with low Noise Figure of 6 dB. The RFoF link has excellent gain flatness with 0.5dB gain tracking between different links. For special applications requiring temperature stability operation, a unique algorithm supporting 0.5 dB over 1000C has been developed.

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, either locally or remotely.

## Specifications for Programmable 2.5 GHz RFoF Unidirectional Unit :

Electrical Specifications	LNA "OFF"	LNA "ON"
Frequency Range, MHz	50 - 2500	50 - 2500
Adjustable Link Gain (nominal value), dB	12	42
Attenuator 31 dB (Tx, Rx), dB	0.5	0.5
Gain Flatness, dB	±1.4	±1.4
Input P1 dB, dBm	-3	-33
Noise Figure, dB	25	5
SFDR, dB/Hz <sup>2/3</sup>	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
Spurious, dBm	-100	-100
VSWR Input / Output, dBm	1.7:1	1.7:1
Input / Output impedance, Ohm	50	50
*75 Ohm is optional with similar VSWR, by using SMA/BNC adaptor		
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

## Options for 2,5 GHz unit

Mechanical and Environmental Parameters	RFoF TX/RX Units	19" 1 U Enclosure for RFoF	RFoF 2.5 GHz Outdoor
Size (W x L x H), in	70 x 70 x 22	Generic: 445 x 476 x 44 Renovable: 442 x 402 x 44	Large Outdoor: 330 x 350 x 85 Small Outdoor: 270 x 230 x 85
Number of Units	-	Up to 8 Up to 4	Up to 6 Up to 4
RF I/O Connector	SMA female	SMA female	SMA female
Optical Connector	FC/APC or SC/APC	FC/APC or SC/APC	MPO/APC 4/8 male
Data Connector	Micro USB	USB2/RJ-45	RJ45 female
Power Connector	PIN 3.5*1.3*9 mm	HP Socket	DC female/ AC male
Power	5-12 VDC	110/220 VAC	9-36 DC / 110/220VAC
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.