



Applications:	Key features:
Satcom	Frequency Range: 0.1-2.4 GHz
GPS	Compact unit
Radio Telescopes	Can be installed also in 1U
Distributed Antenna	Lightweight and small size
Telecommunication:	Best Cost Performance
▶ Antenna Remoting	Tx unit includes LNA
▶ Long RF links via fiber	

**RFOptic's** analog RFoF compact modules convert RF signals to optical signals and back. The Tx unit using an optical transmitter converts RF to Optical signal, and the Rx unit converts Optical to RF signal. The two units are connected by the customer's fiber.

**RFOptic** RFoF-2.4 GHz allows signals to be carried from an antenna to a GPS receiver with minimal signal degradation over a fiber. It supports the transfer of low signal levels like GPS from the antenna to the network.

These RFoF links are designed to offer a low noise figure by integrating a built-in LNA in the transmitter and post-amplifier in the receiver for low level signals. In addition, a built in bias T is offered. It can also be provided in a compact 55\*80\*22 mm<sup>3</sup> aluminum housing case for indoor/outdoor applications.

The RFoF modules have relatively high Gain (about 15dB) with excellent gain flatness, low noise figure thanks to an integrated LNA in the transmitter and high SFDR. In addition, the power consumption is relatively low (about 100 mA). The module can be provided at 1310 nm or 1550 nm. Each unit is powered through its DB-9 port and a power supply of +5 Volts DC is required to operate it safely. Monitoring and alarm functions are also available through the D-9.

Table below describes the typical specifications of the RFoF-2.4GHz-LNA-GPS product.

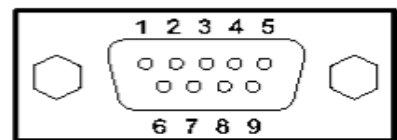
Parameter	Unit	Specifications
<b>RF Tx-Rx link</b>		
Frequency Range	MHz	100 – 2400 - Supports all GPS Freq.
RF Gain	dB	15
Gain Flatness (Max)	dB	$\leq \pm 1.8$
1dB input compression point	dBm	$\geq -15$
VSWR	-	2:1
RF input signal range	dBm	(-75) - (-15)
Maximum input level	dBm	0
Noise Figure 1.2GHz	dB	$< 20$
Spurious signals [1]	dBc	$< -70$
Input and output impedance	Ohm	50
<b>Optical and Electrical (Tx,Rx)</b>		
Laser diode operating wavelength	$\mu\text{m}$	1.31
Receiver Photodiode operating wavelength	$\mu\text{m}$	1.2 - 1.65
Optical Power	mW	$2 \pm 0.5$
Optical Connectors	-	FC/APC
RF input and output connectors	-	SMA
Electrical connectors [2]	-	DB9
Power [3]	VDC	$5 \pm 0.25$
GPS BIAS T	VDC	$5 \pm 0.25$ (50mA max current)
Current consumption at 5VDC (Tx unit)	A	$\leq 0.1$
Current consumption at 5VDC (Rx unit)	A	$\leq 0.05$
LED status indicators (Tx./Rx.)	-	Green
<b>Mechanical and Environmental (Tx,Rx)</b>		
Dimensions of Transmitter	mm	80*55*22
Dimensions of Receiver	mm	80*55*22
Operating temperature range (Trans./ Rec.)	$^{\circ}\text{C}$	-10 to 65
Storage Temperature range (Trans./Rec.)	$^{\circ}\text{C}$	-40 to +85

(1) Excluding in-band harmonics

(2) DB-9 pin layout is described below

(3) DB-9 female convertor from 5VDC to 110/220 VAC is optional

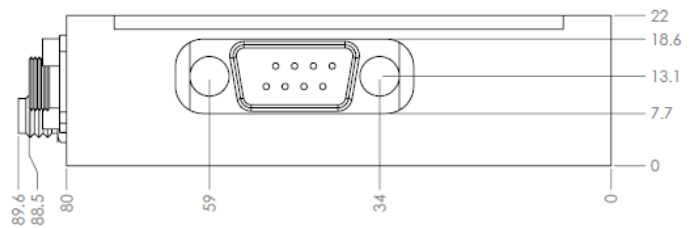
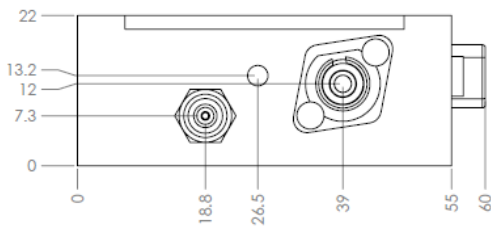
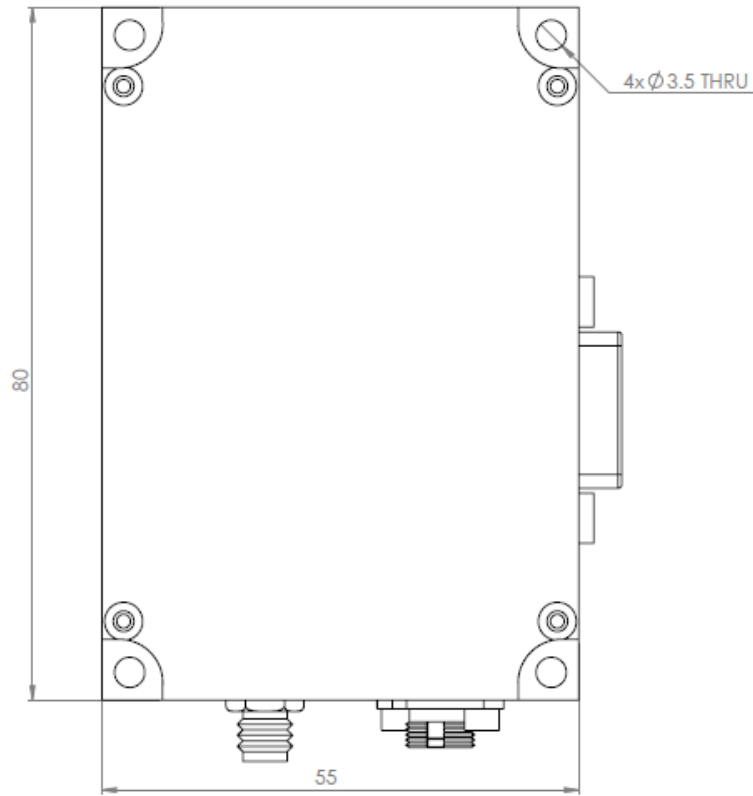
## DB9 Male Layout



Pin Number	Value	Usage Tx
1+2	+5 VDC	Operating voltage for RFoF Tx and Rx
3	NC	Not Connected
4+5	0	Ground
6	NC	Not connected
7	PD	Photodiode Voltage for measuring optical power
8	LED (OUT)	for customer's external LED status (useful for integrators)
9	EN (TX) only	for turn off externally the RFoF Tx unit (laser diode) by +5 VDC input

# Mechanical Layout:

(all dimensions in mm)



## Ordering Information:

Transmitter and Receiver.....	Model Number:	RFoF-2.4G-311-G
220 AC/ 5V DC convertor.....	Model Number:	RFoF- ACDC - 220
110 AC/ 5V DC convertor.....	Model Number:	RFoF- ACDC - 110