RF over Fiber | RFoF-2.4GHz

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	
▸ 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.

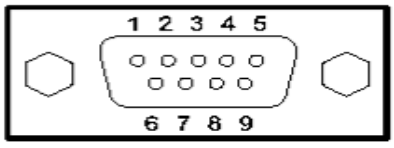
At sport events or concerts, video cameras, wireless microphones and body microphones, are connected to their audio/video receivers through nearby antennas. These antennas in turn carry the captured voice and video signals to the audio/video receivers through coaxial cables. However, a coaxial cable, due to its inherent signal loss, cannot carry the signal too far, therefore limiting the places in which antennas and receivers can be located.

An RFoF Tx module placed by the antenna will convert the RF signal into an optical signal, which then can be carried over a single mode fiber of up to several miles without significant loss. At the receiver site, the RFoF Rx module converts the optical signal back to the RF signal that can be processed by the receiver. This solution enables the broadcaster not to be concerned anymore about the placement of the antenna and receiver units. By replacing the coaxial cable used between the antenna and receiver units, RFOptic's RFoF solution works as a range extender.

Table below describes the typical specifications of the RFoF-2.4GHz product.		
Parameter	**Unit**	**Specifications**
RF Tx-Rx link		
Frequency Range	MHz	100 – 2400
RF Gain	dB	> 0
Gain Flatness	dB	≤ ± 2
1dB Input compression point	dBm	≥ -5
VSWR	-	≤ 2:1
RF input signal range	dBm	(-65) - (-5)
Maximum input level	dBm	10
Noise Figure (1)	dB	<30
Spurious signals (2)	dBc	-70
Input and output impedance	Ohm	50
Optical and Electrical (Tx,Rx)		
Laser diode operating wavelength	µm	1.31
Receiver Photodiode operating wavelength	µm	1.2 - 1.65
Optical Power	mW	2 ± 0.5
Optical Connectors	-	FC/APC
RF input and output connectors	-	SMA
Electrical connectors [3]		DB9
Power (4)	VDC	5 ± 0.25
Current consumption at 5VDC (Tx unit)	A	≤ 0.1
Current consumption at 5VDC (Rx unit)	A	≤ 0.05
LED status indicators (Tx./Rx.)	-	Green
Mechanical and Environmental (Tx,Rx)		
Dimensions of Transmitter	mm	80*55*22
Dimensions of Receiver	mm	80*55*22
Operating temperature range (Trans./ Rec.)	°C	-10 to 65
Storage Temperature range (Trans./Rec.)	°C	-40 to +85

(1) RFoF with lower N.F ≤ 20dB is available with lower P1dB.
(2) Excluding in-band harmonics.
(3) DB-9 pin layout is described below.
(4) DB-9 female convertor from 5VDC to 110/220 VAC is optional.

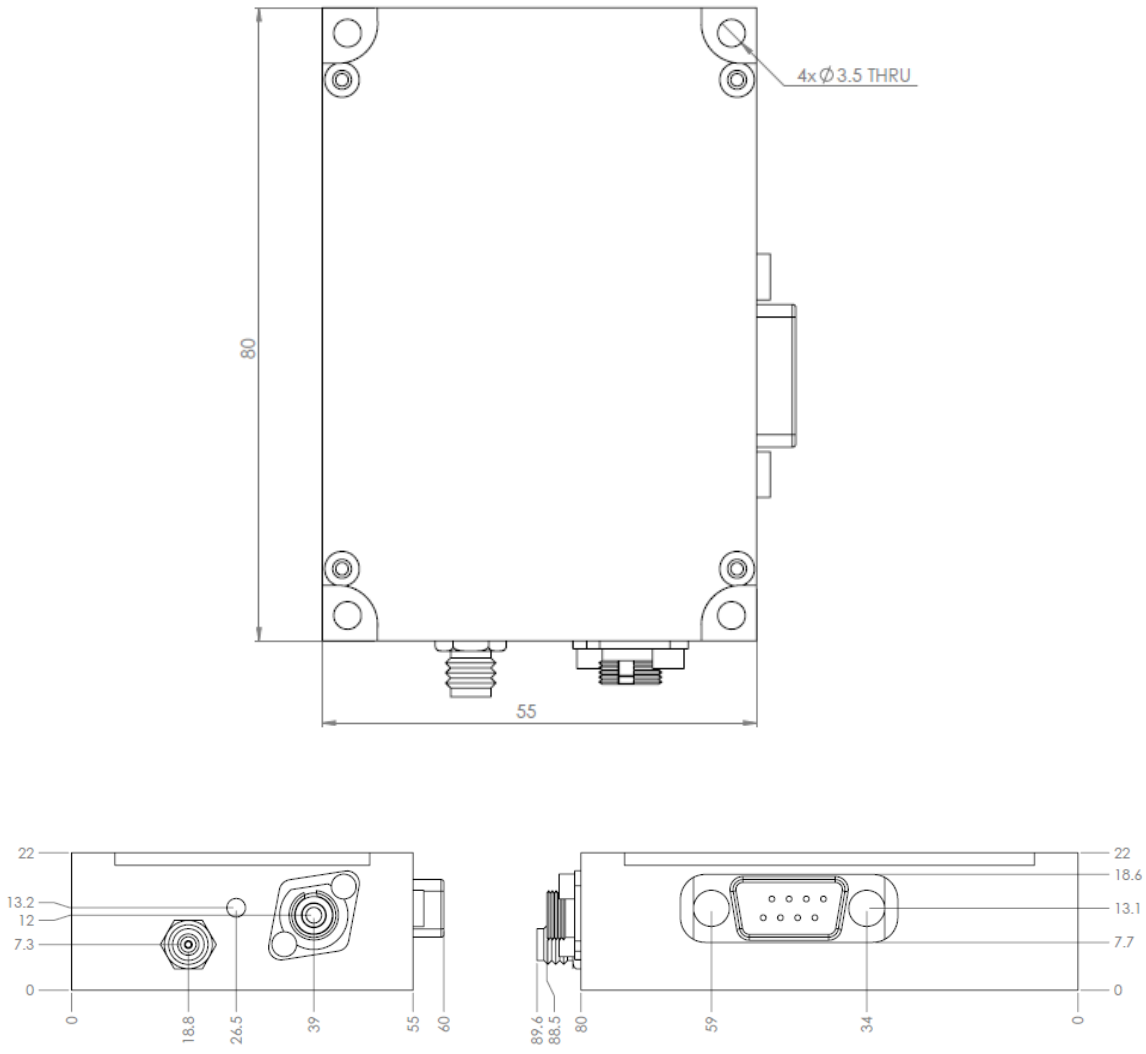
D9 Male Layout



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
220 AC/ 5V DC convertor	Model Number:	RFoF- ACDC - 220
110 AC/ 5V DC convertor	Model Number:	RFoF- ACDC - 110