

12GHz RF over Fiber Mini-S



Key Features:

- Frequency Range: 0.1-12GHz
- Low spurious level
- SFDR 103 dB/Hz
- Excellent Phase Noise
- Excellent phase linearity

Configurations:

- Standard (stand-alone)
- 1U Generic enclosure (4 units)
- 1U Removable panel enclosure (2/4 units)
- Outdoor (2/4 units)

Applications:

- Distributed Antenna
- Satcom
- Radio telescopes
- Telecommunication:
 - Antenna Remoting
 - Long RF links via fiber
- EW

Options:

- Extended Frequency range
- Customized RF Gain, P1dB, Noise Figure by adding Pre & Post amplifier(s)
- Extended low frequency bandwidth.

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's RF over Fiber modules (RFoF) are suitable for telecommunications and radar applications. Satellite, Point-to-Point antennas can be connected from several meters to many kilometers away from the control room. Base stations can be connected through fiber to remote sector antennas.

Broadcasters can easily distribute their full RF streams over fiber to remote locations, therefore eliminating the need for complex equipment to be installed in far and hard to reach locations. With our wide-band units, cable operators can centrally locate their broadcasting equipment, and connect the RF through fiber to the remote location, thus reducing significantly the CAPEX and OPEX of their networks.

RFoF-12GHz-Mini-S Specifications:

RF Parameter RF TX-Rx Link	Unit	Specification typical
Frequency Range ^[1]	GHz	1-12
RF Gain ^[2,3]	dB	-33
Gain Flatness	dB	≤ ±1.5
1dB Input compression point ^[3]	dBm	16
Noise Figure ^[2,3]	dB	44
SFDR (calculated) ^[3,4]	dB/Hz ^{2/3}	103
Maximum RF input level	dB	23
VSWR Input	-	2:1
VSWR Output	-	2:1
Spurious	dBc	≤-80
Phase Noise at 10KHz offset	dBc/Hz	≤-100
Input / Output impedance	Ohm	50
Optical and Electrical and Environmental (Tx, Rx)		
Laser diode optical wavelength	μm	1.55
Receiver photodiode optical wavelength	μm	1.5-1.58
Operating temperature range	°C	0 to +70
Storage temperature	°C	-40 to +85
LED status indicators (Tx/Rx)	-	Green/Red
Input voltage	VDC	5
Power consumption Tx module	Watt	2.5
Power consumption Rx module	Watt	0.5
Mechanical (Tx/Rx)		
Dimensions Tx/Rx unit	mm	75*154*33
RF Input / Output connectors	mm	SMA
Optical Connector	-	FC/APC
Power connector and Data connector	-	DB15

[1] Extended low frequency bandwidth 0.1-18GHz upon request.

[2] Excluding customer fiber loss.

[3] Measured at 6 GHz.

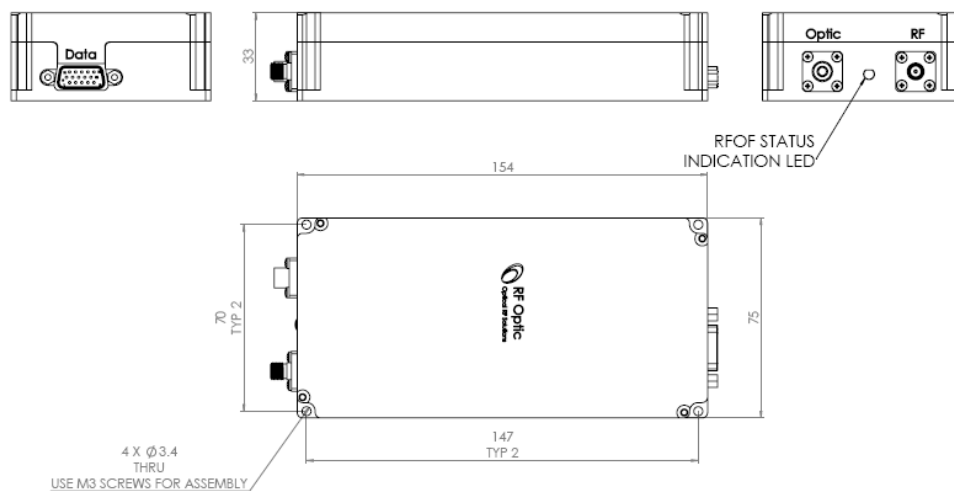
[4] Calculated. Excluding in-band harmonics. SFDR=2/3(IP3+174-NF) dB/Hz^{2/3}.

RFoF 12GHz Mini-S module options:

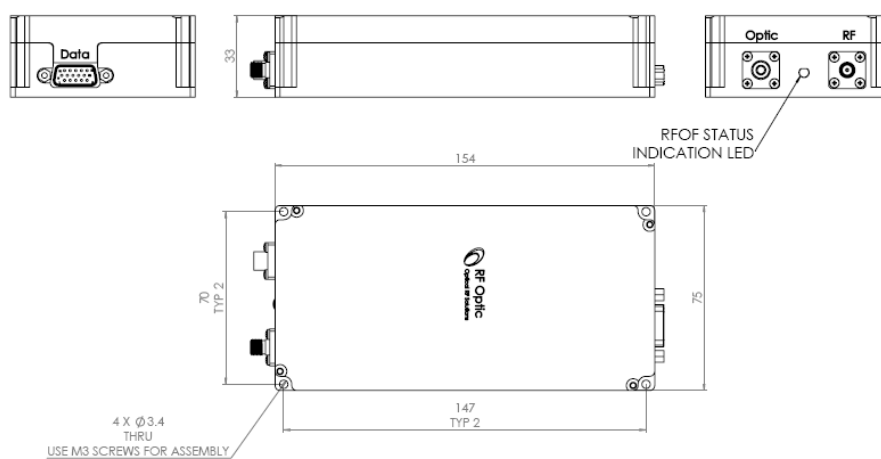
Parameter	P/N Unit	RFoF 12GHz	12GHz with Pre-Amp	12 GHz with Post-Amp	12 GHz with Pre- & Post-Amp
P/N	-	RFoF-12G-S0-MINI	RFoF-12G-S1-Mini	RFoF-12G-S0-Mini-P	RFoF-12G-S2-Mini
Gain	dB	-33	-17	-3	0
InP1dB	dB	16	-1	16	-1
Noise Figure	dB	44	28	44	28
SFDR	dBc/Hz	103	103	103	103

Mechanical Outline Drawing: 12GHz RFoF Tx & Rx units

Tx unit



Rx unit



Ordering Information

Link Name	Description	Tx	Rx
RFoF-12G-S0-MINI	Transceiver 12 GHz	RFoF12TFS-N0-11	RFoF12RFS-N0-11
RFoF-12G-S1-Mini	Transceiver 12 GHz, with Pre-Amp	RFoF12TFS-A0-11	RFoF12RFS-N0-11
RFoF-12G-S0-Mini-P	Transceiver 12 GHz, with Post-Amp	RFoF12TFS-N0-11	RFoF12RFS-A1-11
RFoF-12G-S2-Mini	Transceiver 12 GHz, with Post-Amp and Pre-Amp	RFoF12TFS-A0-11	RFoF12RFS-A0-11