

RFoF-TR (30MHz & 5KHz~12GHz)

Bidirectional RF over Fiber Transceiver Module

PRODUCT DESCRIPTION

The RFoF series delivers high-performance, cost-effective solutions for Wideband RF signal transmission over fiber. Designed to meet the demands of diverse application scenarios, these modules enable low-loss, high-linearity analog transport across extended distances. Leveraging expertise in microwave photonics, the company is committed to close collaboration with telecom operators, system integrators, and solution partners to jointly develop advanced RFoF products and customized solutions for evolving industry needs.



The RFoF-TR is a compact bidirectional transceiver module supporting up to 12 GHz bandwidth. It integrates a high-linearity DFB laser and PIN photodiode for direct modulation and detection of analog RF signals. The module supports

CWDM-based single-fiber bidirectional transmission, as well as dual-fiber configurations for flexibility. By replacing lossy coaxial cables, the system ensures high signal integrity, low noise, and extended transmission distance, making it ideal for applications such as satellite communications, GNSS signal relay, distributed antenna systems, and microwave photonics.

PRODUCT FEATURES

- ▶ CWDM-based single-fiber full-duplex transmission for reduced cabling and enhanced system efficiency
- ▶ Integrated high-linearity DFB laser for low-distortion analog signal modulation
- ▶ Compact, ruggedized form factor with low power consumption
- ▶ Supports wideband operation up to 12 GHz (20 GHz optional)
- ▶ High cost-performance ratio for scalable system deployment

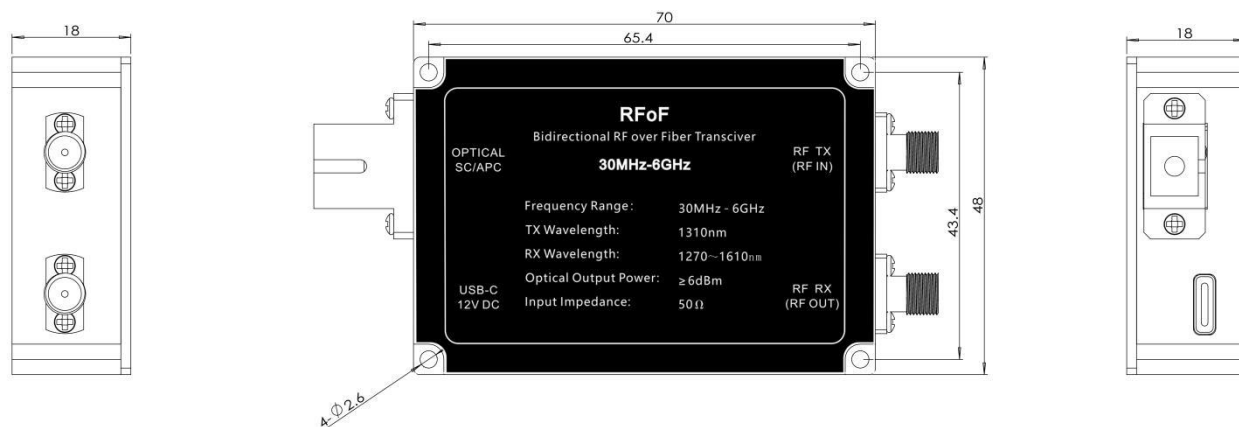
MAIN APPLICATION

- ▶ Secure and encrypted RF communication
- ▶ GNSS signal distribution (Beidou/GPS)
- ▶ Satellite uplink/downlink via analog optical link
- ▶ Distributed Antenna Systems (DAS) for telecom networks
- ▶ Wideband RF transport in microwave photonics systems
- ▶ Optical repeaters for tunnels and remote environments

TECHNICAL INDEX

Performance				Index			Supplement
				Min.	Typ.	Max.	
Optical Feature	TX	Working Wavelength	(nm)	1270	1310/1550	1610	CWDM Optional
		Output Optical Power	(dBm)		6		Optional 10.0 dBm
		Side Mode Suppression Ratio (SMSR)	(dB)		45		
		Output Optical Isolation (ISO)	(dB)	30			
	RX	Receiving wavelength range	(nm)	1270		1610	
		Receive specific wavelengths	(nm)		xxxx		Built-in CWDM
		Input optical power range	(dBm)	-12		+3	Simulate
		Responsiveness	(A/W)	0.85			
	Light Reflection Loss		(dB)	50	55		APC
	Fiber Connector				LC/APC		FC/APC,SC/APC Optional
RF Feature	-3dB Minimum Cutoff Frequency		(MHz)	30			General
			(KHz)		5		Customized
	-3dB Maximum Cut-Off Frequency		(GHz)		1.0		TR01
					3.0		TR03
					6.0		TR06
					10.0		TR10
					12.0		TR12
	In-Band Flatness(FL)		(dB)		±0.5	±0.75	TR01
					±1.0	±1.5	TR03
					±1.5	±2.0	TR06
					±2.0	±2.5	TR10~12
	RF Return Loss		(dB)		-16	-12	TR01
					-12	-10	TR03
					-10	-7	TR06
					-10	-5	TR10~12
	SFDR				110@6GHz		
	RF Input Power (TX)		(dBm)	-5		+5	
	RF Output Power (RX)		(dBm)		+5		
	RF Working Impedance		(Ω)		50		
	RF Connector				SMA-F		
General Feature	Supply Voltage (DC)		(V)		+12		
	Working Current		(mA)		500		
	Operation Temperature		(°C)	-20		+75	
	Storage Temperature		(°C)	-40		+85	
	Relative Humidity		(%)	5		95	
	Dimensions (WxDxH)		(mm)		48x70x18		

DIMENSION



MODEL EXPLANATION

RFoF - TR □□ / □ - T□□□□ - R□□□□ - □ - □□

Product Series	Product Type		Maximum Frequency		Minimum Frequency		TX Wavelength		RX Wavelength		MODE		Fiber Connector	
RF Fiber Optic Link Products	TR	Integrated Receiver and Transmitter	01	1GHz	G	30MHz	1550	1550nm	1310	1310nm	S	Bi-directional	LA	LC/APC
	TX	Optical Transmitter	03	3GHz	M	1MHz	1310	1310nm	1550	1550nm	B	Dual Fiber Bidirectional	SA	SC/APC
	RX	Optical Receiver	06	6GHz	L6	6GHz 30KHz	XXXX	CWDM	XXXX	CWDM			FA	FC/APC
	RT	Optical Amplifier and Wavelength Conversion	10	10GHz										
			12	12GHz	L1	1GHz 5KHz								