R-ROFxxxxT series RF over fiber Link analog broadband optical transceiver link

The R-ROFxxxxT series RF over fiber Link analog broadband optical transceiver link is a fiber optic remote transmission device specifically designed for real-time measurement of DC to 1GHz electrical signals in complex electromagnetic environments. The transmitting module features a 1 MΩ/50 Ω BNC input, which can be connected to various sensing devices (current probes, high-voltage probes or specific high-frequency measurement devices). In the transmitting module, the input electrical signal is modulated and converted into an optical signal, which is then sent to the receiving module through a single-mode optical fiber. The receiver module converts the optical signal back into an electrical signal. The optical signal transmission is regulated by automatic level control to maintain precise and constant performance, unaffected by optical loss. Both the transceiver modules support battery power supply and remote control. The optical transmission module also includes an adaptive adjustable attenuator (1:1/10:1/100:1) for adjusting the received signal level to optimize the dynamic range. In addition, when the device is not in use, it can be remotely entered into a low-power standby mode to save battery power, and the LED indicator light shows the working status.

Feature

- The bandwidth of DC-500 MHZ/DC-1 GHZ is optional
- Adaptive optical insertion loss compensation
- The gain is adjustable and the input dynamic range is optimized
- Supports remote control and is battery-powered, making it convenient for outdoor use

Application

- Remote transmission of analog signals
- Electromagnetic Field Testing
- Shipborne RF Distribution
- Satellite Ground Station Clock Transmission

Link specifications

parameter	value	remark
bandwidth	DC-500MHz, DC-1GHz optional	
In-band flatness	DC-500MHz: ±1 dB， DC-1GHz: ±1.5dB	
Link attenuation level	1: 1/10:1/100:1, controlled by the upper computer	
input impedance	1 M Ω/50 Ω, controlled by the upper computer	
output impedance	50 Ω	
Maximum output amplitude	±0.7Vp	
Instantaneous dynamic range	＞55dB	
Output noise	2mV	50 Ω, RMS
Optical insertion loss compensation	automatic	
Laser wavelength (TX/RX)	1310nm /1550nm	
Maximum anti field strength capability	＞500kV/m	
Operating Temperature	-10℃~ +50℃	
Maximum transmission distance	≥1km	

Add: 北京市朝阳区南磨房路 37 号 1806 室 Zip: 100022 Tel: 010-52725627 sales@conquer-oc.com

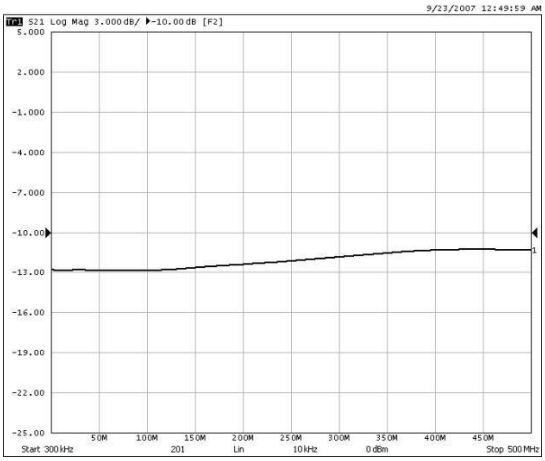
Transmitter (TX) specifications

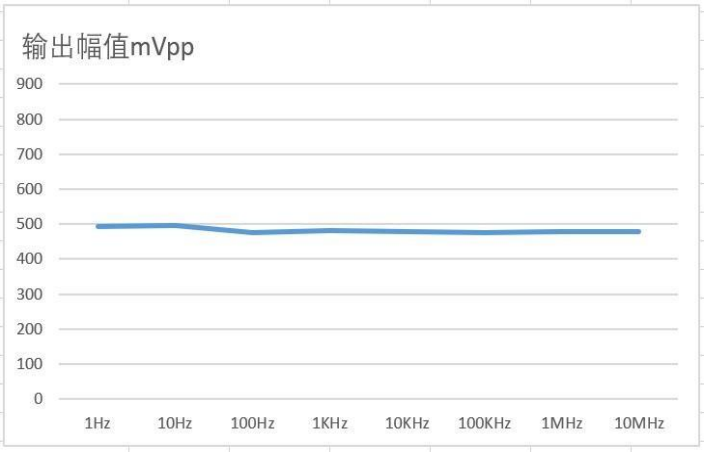
parameter	value	remark
Input attenuation ratio	1:1/ 10:1 /100:1，controlled by the upper computer	
input impedance	1 MΩ / 50 Ω, controlled by the upper computer	
Maximum input power (CW)	0.4W	Input=50 Ω,
Maximum input voltage amplitude	1:1 ±3Vp 10:1 ±30Vp 100:1 ±125Vp	
Input protection voltage amplitude	1:1 ±0.7Vp 10:1 ±7Vp 100:1 ±70Vp	
RF input interface	BNC female	
Laser wavelength (TX/RX)	1310nm /1550nm	
Laser output power	＜5mW	
Built in testing square wave signal	500Hz，0-0.5V	
Optical interface	FC/APC	
power supply method	Built-in battery	
Full power working hours	48h	
Overall dimensions	100mm*65mm*40mm	
weight	450g	

Receiver (RX) specifications

parameter	value	remark
RF output port	BNC female	50 Ω
Output power 1dB compression point	＜10KHz : +9dBm 10KHz ~ 200MHz : +10 dBm 200 ~ 500MHz : +2 dBm 500 ~ 1000MHz : 0 dBm	
Output noise voltage	2mV	50 Ω，RMS
Maximum output dynamics	±0.7Vp	
Digital optical signal	1550nm / 2mW	
Optical insertion loss compensation	automatic	
Optical interface	FC/APC	
Remote control interface	Mini-USB	
power supply method	Built-in battery	
Full power working hours	48h	
Overall dimensions	100mm*65mm*40mm	
weight	450g	

Frequency response curve (S21)





DC-500M Frequency Response Curve Test Diagram

R	ROFxxxxT	X	XX	X	XX	XXX
	ROFxxxxT	Encapsulation: M - Module	Bandwidth： 500M---- 500MHz 1G---- 1GHz	Operating wavelength： 13---1310nm 15---1550nm	Fiber optic connector: FP---FC/PC FA---FC/APC	Pigtail： P---PMF S---SMF

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