



Precise synchronization of clocks is a crucial element in public safety communication systems and private networks. That's why our RF over Fiber (RFoF) bidirectional links are compliant with timing standards of fractions of picoseconds between the uplink and the downlink by unique technology that was developed by RFoptic. The RFoF links may carry common reference frequency signals such as 1, 10 and 100 MHz.

One of the applications, which is used in radio telescope deployments, is designed to reduce the delay between the uplink and downlink of telescopes that are observing the same object. The following table shows the main characteristics of such timing and synchronization links, using two bidirectional RF over Fiber Optic modules.

## Bidirectional RFoF Modules - Technical Specifications

Parameter	Typical Value	Unit	Notes
Type	Bidirectional		
Frequency	1-100	MHz	
RF Link Gain	≥ -5	dB	
Gain Flatness (S21)	≤ ±1	dB	
Tx Return Loss (S11)	≤ -15	dB	
Rx Return Loss (S22)	≤ -15	dB	
Input P1dB	≥ 10	dB	
SFDR	≥ 105	dB/Hz <sup>2/3</sup>	
RF connector	SMA female	-	
Optical Connector	FC/APC	-	
Dimensions	22.2 x 14.6 x 5.6	cm	
Supplied Voltage	12	VDC	
Temperature sensor (Tx)	PT1000		
Fiber length	10 - 1,000	meter	
<b>Other Parameters:</b>			<b>Parameters measured by the customer</b>
Stability			
ADEV at 30 sec	<1*e-14	sec	
ADEV at 100 sec	<8.0*e-15	sec	
ADEV at 3000 sec	<1*10e-15	sec	
Phase noise	>100	dBc	at 100 Hz
Delay between uplink and down link	<1 psec RMS between down link & uplink during 30 sec	psec	For 1km fiber, at 5 MHz; Temperature stabilization at 23 ±0.5 degrees.