

Drone and UAV RFoF Remote Antenna



Key Features:

- Bidirectional support for all drone signals
- Low Noise 30dB gain front end in receive
- High power transmitter for longer range
- Antenna remoting from 10m to several Km
- High dynamic range
- Outdoor rugged enclosures
- Low-cost fiber (expendable) interface
- Amplitude Control with 31.5dB, 0.5dB step input and output step attenuators

Options:

- Indoor rack mount enclosures
- Armored fiber cable
- Ethernet over the same fiber link
- AC or DC Power
- Built in diagnostics
- Channel filters
- Multi-site antennas for improved survivability
- Remote Monitoring and control

Applications:

- UAV and Drone antenna remoting

RFOptic's developed custom Antenna remoting technology for Drones and UAV's. This technology provides high dynamic range bi-directional RFoF support for distancing the, often targeted due to its emissions, Drone or UAV antenna from its operator and control trailer. The system delivers the UAV's flight control signals over a single mode fiber to the and boosts it to achieve improved range. On the downlink path the return signals from the UAV are amplified and returned to the controller on the same single mode fiber along with any associated signals such as video or other reconnaissance signals. The system is designed to deliver the full 4GHz – 6GHz band commonly used by such UAV controllers, and can be customized to support other frequency ranges up to 12GHz and 18GHz.

The RF input signals are converted into a modulated optical signal with a particular wavelength, which is then transmitted over a single mode fiber to be converted back into RF signal at the Antenna site. The Drone or UAV return signal is modulated onto an optical signal with a different wavelength and transmitted over the common fiber in the opposite direction where it is demodulated at the controller site to reproduce the RF signal. Ethernet signaling can be also combined into the same fiber connection to provide network connectivity at the remote antenna site for handling other equipment monitoring and control functions.

RFoF converters offer Gain control features and pre-configuration capability to simplify deployment in any circumstances.

Drone and UAV RFoF Remote Antenna Specifications

Electrical	Unit	Specifications (typical)	
Frequency Range ^[1]	GHz	4 - 6	
Controller to Antenna distance	m	10 – 4000	
		Uplink (LNA Off)	Downlink (LNA On)
Gain	dB	12	+10 - +25
1dB Compression Point	dBm	20	-25
Minimum Noise Figure (downlink) (LNA On)	dB	50	10
Output power max	dBm	+33	+10
Gain control (Input and output 31.5dB/0.5dB step attenuators)	dB	> 60dB	> 60dB
SFDR	dB/Hz ^{2/3}	96	92
Gain Flatness	dB	±2	±1.5
Maximum Input No damage	dBm	26	20
Spurious	dBc	-85	-75
Return Loss (Input / Output)	dB	10	10
Input / Output impedance	Ohm	50	50

Optical and Electrical		
Main Supply	V	220/110 AC or 9 – 36 DC
RF Connectors ^[2]		N Type

Mechanical and Environmental Parameters		
Operating Temperature	C°	0 to +60
Storage Temperature	C°	-45 to +85

[1] Other frequencies upon request.

[2] Other Connectors are optional.

[3] For additional information of this product, see brochure of *Programmable 6.0GHz RF Over Fiber*.

Drone and UAV RFoF Remote Antenna Simplified block diagram



To order or for more information, please contact your local RFOptic distributor or RFOptic directly