

RFoF for 5G - DAS Extension Solution

RFOptic's RFoF DAS extension system was designed to meet mobile system integrators demand. It overcomes overcome the loss caused by coax infrastructure at frequencies above 5.0Ghz.

It utilizes RFOptic's unique technology and offers a better performance than coax cable in terms of EVM and ACLR over a wide range of signal levels over long distances.

The 5G system is comprised of outdoor enclosure which are situated on the roof close to the antenna and indoor connected by optical fibers. Each enclosure can be monitored and controlled remotely through HTML/REST/SNMP or an USB interface.



Key Features:

- Customized RFoF modules with enhances performance
- Supports up to 6.0GHz
- Superior linearity
- Excellent gain flatness
- 10 dB Noise Figure with LNA ON (MDS -164dBm/Hz)
- Management via HTML/REST/SNMP or USB
- Link gain control (60dB with 0.5dB step)
- End-to-end build-in diagnostic reduces installation and maintenance time

Configurations:

- 19" 1U enclosure with up to 6 Tx or Rx
- Outdoor enclosure with up to 6 Tx or Rx

Applications:

- 5G test sites
- DAS
- Distributed Antenna

RFoF-6GHz for 5G DAS extension Solution Specifications

The 6GHz 5G DAS extension solution is comprised of two 19" 1U or 2U removable enclosure and an outdoor enclosure. Each enclosure includes up to 6 RFoF Tx or Rx. It can be monitored and controlled through HTML/REST/SNMP or USB interface.

RF	Unit	Specification	
		Typical LNA Off	Typical LNA On
Frequency Range	MHz	0.5 - 6000	0.5 - 6000
Adjustable Link Gain (nominal value) ^[1,4]	dB	-3	27
Bi Dir Loop Gain Isolation each direction	dB	18	18
Attenuator 31 dB (Tx, Rx) ^[2]	dB	0.5	0.5
Gain Flatness	dB	±2.5	±2.5
Input P1 dB ^[3,4]	dBm	3	-27
Noise Figure ^[3,4]	dB	27	6
SFDR ^[3]	dB/Hz ^{2/3}	104	100
Maximum Input No damage	dBm	20	20
VSWR Input / Output	dB	2:1	2:1
Input / Output impedance	Ohm	50	50
Optical and Electrical			
Laser diode operating wavelength	µm	1.31 or 1.55	1.31 or 1.55
Optical power in the fiber	mw	2.5 +0.5	2.5 +0.5
System Monitor & Control		HTML	
RF Connector ^[4]		SMA(f)	
Optical MUX/DEMUX		1310/1550nm	
Optical Connector		FC/APC or SC/APC	
Power		Two redundant PS 110/220 VAC	
Mechanical and Environmental			
Operating temperature	°C	-20 to +70	-20 to +70
Storage temperature	°C	-40 to +85	-40 to +85
EMC and Safety ^[4]	-	CE & FCC	CE & FCC

[1] LNA 'ON' or 'OFF' is selected by RFOptic's default setting or by using the RFoF user software.

[2] 'No Attenuation' is the default for the Bidirectional Tx and Rx units. Attenuation values can be selected by user software.

[3] Noise Figure, Input P1 dB, and SFDR measured at mid-band; other values can be selected by 'LNA OFF/ON' and Tx Attenuator.

[4] Common RF port implemented with power divider/combiner.

[5] Safety EN60950-1:2006(2nd)+A11:2009+A1:2010+A12:2011+A2:2013; EMC: ETSI EN 300 386 v1.6.1(2012-04) and FCC CFR-47 part 15 Subpart B.

[6] Should one of the terminals be disconnected (assuming full reflection) the combiner isolation will be reduced to ~4dB

RFOptic Solution Guide

[6.0 GHz RF over Fiber](#) – 6.0GHz Transceiver 1310/1550, FC/APC, Programmable

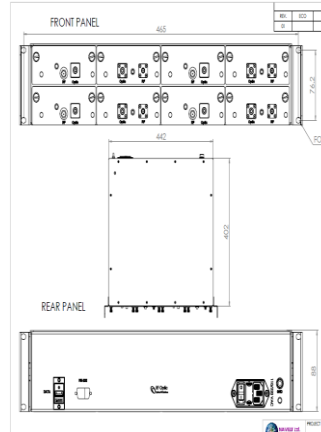
[RF over Fiber 1U and 1U/2U Subsystems](#) – 19" 1U Enclosure

RFOptic User Documentation

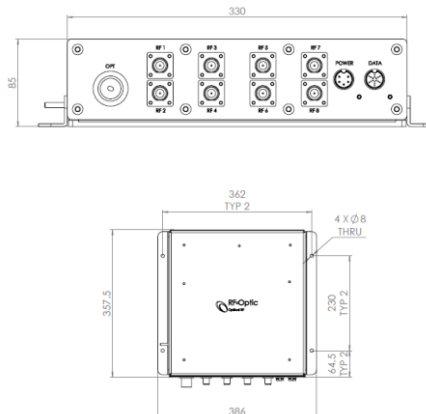
[Remote Monitor & Control User Manual](#) – for SNMP/HTML/RESP

[DAS Extension Solution Manual](#) – for Indoor and outdoor enclosures

19" 2U enclosure drawings



Outdoor enclosure drawings



Ordering Information:

For the specific configuration, define the following:

1. Enclosure type
2. Upper Frequency –
3. Number of Tx and Rx modules
4. Communication type
5. Power
6. Optical connector
7. RF connector

Part Number	Description
RFoF- S8NM6TORIHNA0	19" Outdoor Big with 6 RFoF Tx 6GHz modules, N, MPO, HTML.
RFoF- R2SS0T6RIHNA0	19" 2U Enclosure with 6 RFoF Rx 6GHz modules, SMA, SC/APC, HTML.