

Data Sheet

RF-over-Fiber RFoF1 – 100 MHz LPN

Description

The RF-over-Fiber Low Phase Noise link (RFoF1 – 100 MHz LPN) converts an analog RF signal into an optical signal and also converts the optical-signal back to an RF signal. The module offers excellent stability and particularly low jitter / phase noise for rapidly growing use in high-tech niche environments.

Features

- Best-in-class phase noise performance
- Single mode with a max. link length of 10 km
- Analog signal to optical convert and back

Applications

- Test and measurement
- Timing and synchronization
- Low phase noise reference and local oscillator signal distribution
- Radar applications



Order Information

Item Number	Part Description
85161322	RFoF1 – 100 MHz LN 1310 (TX)
85161323	RFoF1 – 100 MHz LN (RX)

Electrical Data

Parameters	Value	Remarks		
		Min.	Typ.	Max.
All specifications at 25°C case temperature T _c , unless otherwise specified				
Frequency range	MHz		100	
Gain	dB	1.5	3.0	4.5
Optimum input power	dBm	1.0	2.0	3.0
Max. input power for no damage	dBm	20.0		
VSWR (RF input and output)	-			1.9
Supply voltage transmitter	VDC	+11	+12	+16
Supply voltage receiver	VDC	+11	+12	+16
Phase noise	10 Hz offset			-137
	100 Hz offset			-142
	1 kHz offset			-145
	10 kHz offset			-149
	100 kHz offset			-150
	1 MHz offset		-158	-156
	10 MHz offset		-158	-156
RF input impedance	Ohm		50	
RF connectors:			SMA (female)	other interfaces on request

Optical Data

Parameters	Value	Remarks		
		Min.	Typ.	Max.
All specifications at 25°C case temperature T _c , unless otherwise specified				
Wavelength	nm		1310	
Fiber optic connectors			FC/APC	
Fiber			standard single mode 9/125 μm	
Optical power in fiber	mW		4...7	
Side mode suppression ratio	dB	30	40	

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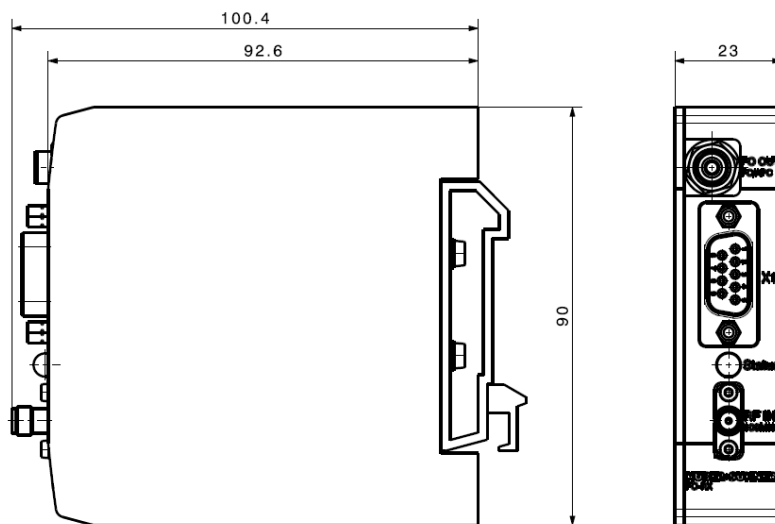
Environmental Data

Parameters	Value			Remarks	
	Min.	Typ.	Max.		
Temperature range	operating	°C	-40	+85	
	storage	°C	-40	+85	

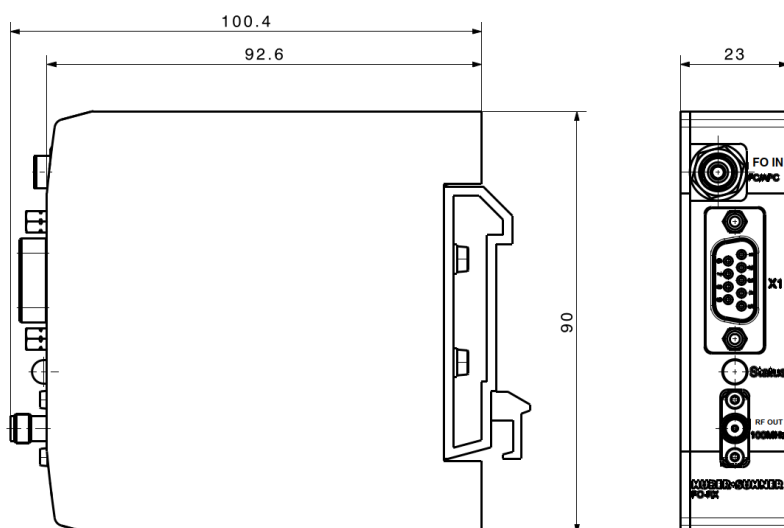
Dimensions (mm)

Parameters	Value	Remarks
Module weight	g	270
Module dimensions	mm	90 x 100 x 23

RFoF1 – 100MHz LN (TX)



RFoF1 – 100MHz LN (RX)



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Control functionalities pinout

The D-Sub 9 connector on the front of the module not only provides power to the RF-Over-Fiber module. In addition information such as Optical power, TX Power Alarm and Temperature are made available as per tables below on both transmit (TX) and receiver (RX) end.



D9 Pin #	Signal Description	Signal Direction	TX		
			Voltage Range	Current	Remark
1	ground	-		-	connected to module / circuit board internal ground
2	+12 V DC supply	input	11 V to 16 V	<250 mA	
3	ground	-	-	-	connected to module / circuit board internal ground
4	optical power monitor	output	$V_{mon} = 0.1 \dots 0.2 \text{ V/mW}_{opt}$	max. 2 mA	voltage proportional to laser diode emitted average optical power
5	ground	-	-	-	connected to module / circuit board internal ground
6	TX optical power alarm	output	Tx (0: no alarm, 1: alarm)	± max. 25 mA	alarm active if laser power low
7	ground	-	-	-	connected to module / circuit board internal ground
8	PCB temperature	output	10 mV/°C, 750 mV@25 °C, range: -40 ... +125 °C	<50 uA (load)	
9	ground	-	-	-	connected to module / circuit board internal ground

D9 Pin #	Signal Description	Signal Direction	RX		
			Voltage Range	Current	Remark
1	ground	-	-	-	connected to module / circuit board internal ground
2	+12 V DC supply	input	11 V to 16 V	<150 mA	
3	ground	-	-	-	connected to module / circuit board internal ground
4	optical power monitor	output	$V_{mon} = 0.6 \dots 0.8 \text{ V/mW}_{opt}$	max. 2 mA	voltage proportional to average optical power received at fiber-optic input
5	ground	-	-	-	connected to module / circuit board internal ground
6	TX optical power alarm	output	TTL (0: no alarm, 1: alarm)	± max. 25 mA	alarm active if received optical power low (below approx. 0.3 mW)
7	ground	-	-	-	connected to module / circuit board internal ground
8	PCB temperature	output	10 mV/°C, 750 mV@25 °C, range: -40 ... +125 °C	<50 uA (load)	
9	ground	-	-	-	connected to module / circuit board internal ground

- RoHS compliant
- protected
- Power supplies are supplied with each module
- DIN 35 brackets are delivered with each module. Other brackets available upon request
- MIL and other certifications are possible upon request
- Various racks and enclosures available

Important catalogue links

RF cables: <http://literature.hubersuhner.com/Technologies/Radiofrequency/RFCablesEN/>
 RF connectors: <http://literature.hubersuhner.com/Technologies/Radiofrequency/RFCConnectorsEN/>
 FO standard assemblies: <http://literature.hubersuhner.com/Technologies/Fiberoptics/FOcableassembliesEN/>

HUBER+SUHNER is certified according to ISO 9001, ISO 14001, ISO/TS 16949 und IRIS

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