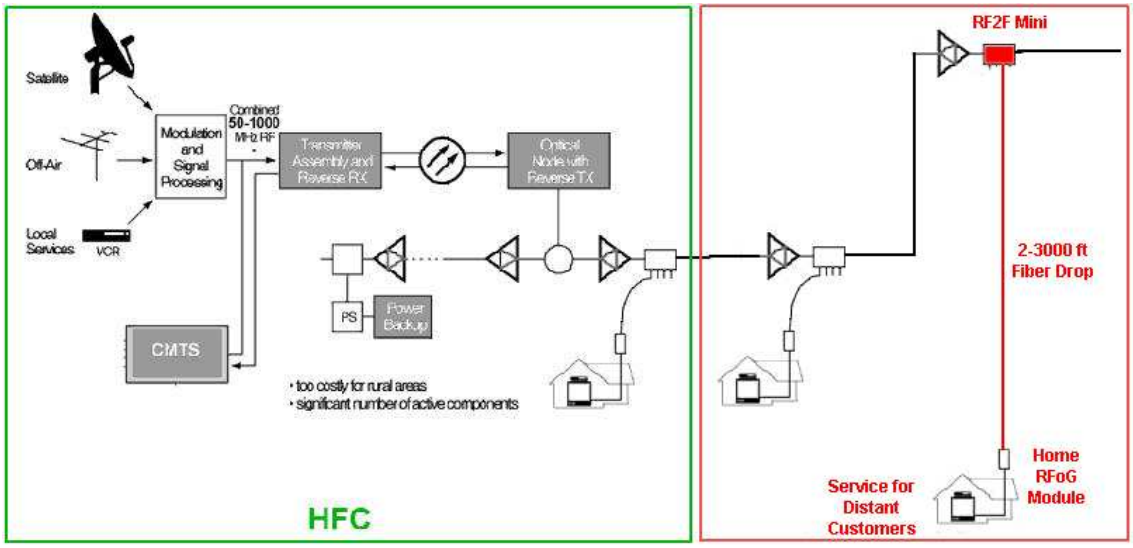
RF2F-Mini

Series

Coax to Fiber Tap

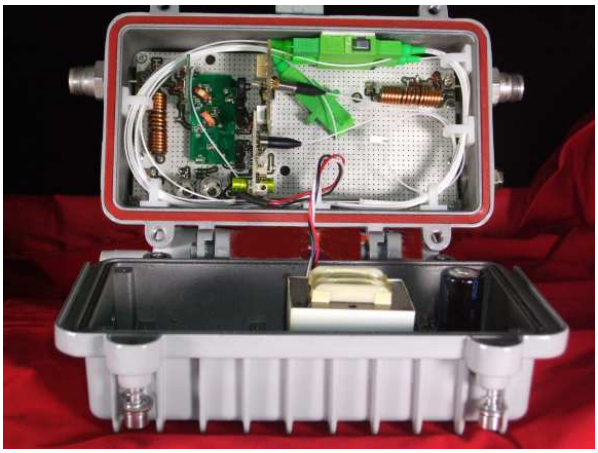
Low Power 1550 Transmitter and Receiver

An answer on how to service distant customers



Version 1

- **1550 nm 3 dBm 1 GHz Transmitter**
- **Built in 1550/1310 WDM**
- **1310 Receiver**
- **Plug in Directional Coupler**



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RF2F-Mini Series Transmitter Manual

CAUTION

The 4Cable RF2F-Mini Series of transmitters should not be used with fiber exceeding 1 mile in total length from end to end. Because the Laser Diodes are directly modulated, laser chirp does occur. Laser chip will interact with the dispersion effect caused by standard single mode fiber (SMF-28), and will generate distortion. The total distance should not be exceeded!

New information and models will be posted on the website

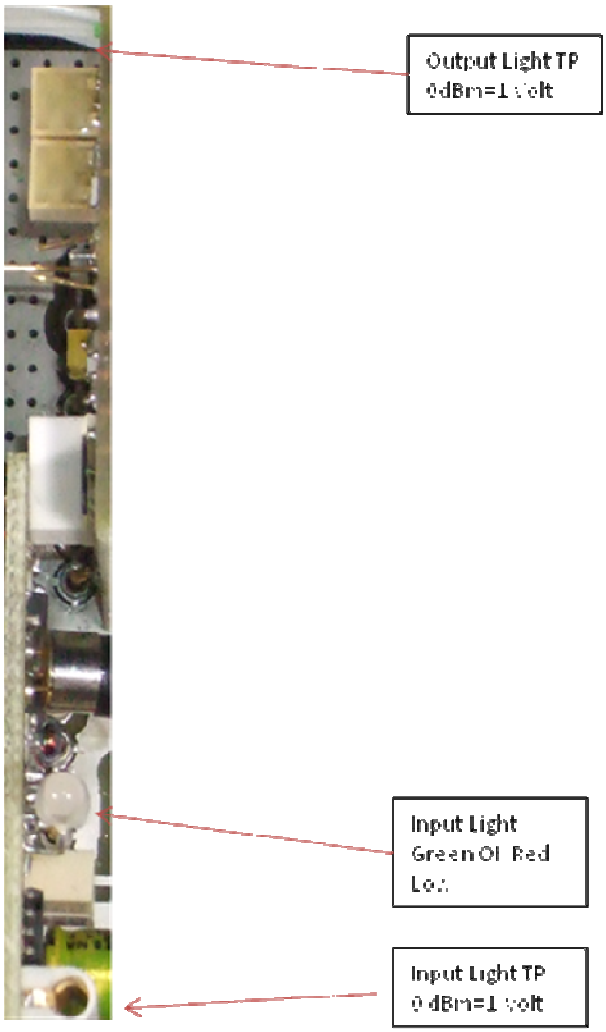
http://www.RF2F.com

Technical Specs

Parameter			Value	Option
Optic Specs	Wavelength	(nm)	1548~1563	
	Line width	(MHz)	≤1	FWHM(□λ)
	Side mode suppression ratio	(dB)	≥45	SMSR
	Extinction ratio	(dB)	≥20	XP
	Equivalent noise intensity	(dB/Hz)	≤-160	RIN (20~1000MHz)
	Output power	(dBm)	3	5 dBm Option
	Return loss	(dB)	≥55	
	optical fiber connector		SC/APC	
RF Specs	Bandwidth	(MHz)	45-1000	
	Input level	(dBmV)	15 dBmv	With 2 way splitter
	Flatness	(dB)	≤±1.5	
	Return loss	(dB)	>16	
	Noise Figure	(dB)	8	2-way splitter on input 0 pad 0 EQ
	Input impedance	(Ω)	75	RF/INPUT
	Input RF Adjust	(dB)	Set for 0 dBmv TP	

Link Specs	Transmit channel loading		NTSC/78CH	
	CNR	(dB)	≥50	-1dBm receive
	CNR	(dB)	≥44	-5dBm receive
	CTB	(dBc)	68	
	CSO	(dBc)	65	
	Power supply	(V)	40-90 VAC	
	Power	(W)	≤2	
	Work temp.	(C)	-40 ~ +65	
	Storage temp.	(V)	-40~ 85	
	Operating relative humidity	(%)	5~95	
	Size	(")	7.5×5×4	(W)x(D)x(H)

Light Measurement and Indicators



1. Output Light TP should read about 2 volts for 3 dBm output
2. If there is signal present from the home RFoG Unit (NIU) the LED should be green. If no light is present the LED will be red
3. If you have a stead input light you can measure it at this TP. 0 dBm in will read 1 volt.

-3 dBm	.5 volt
-6 dBm	.25 volt
-9 dBm	.125 volt
-12 dBm	.0625

Depending on the type of home unit you should read .5 to .25 volts. Remember RFoG house units do not turn on the return light unless there is an RF carrier present. You should insert a RF carrier into the RFoG house unit at about a 40 dBmv level for testing

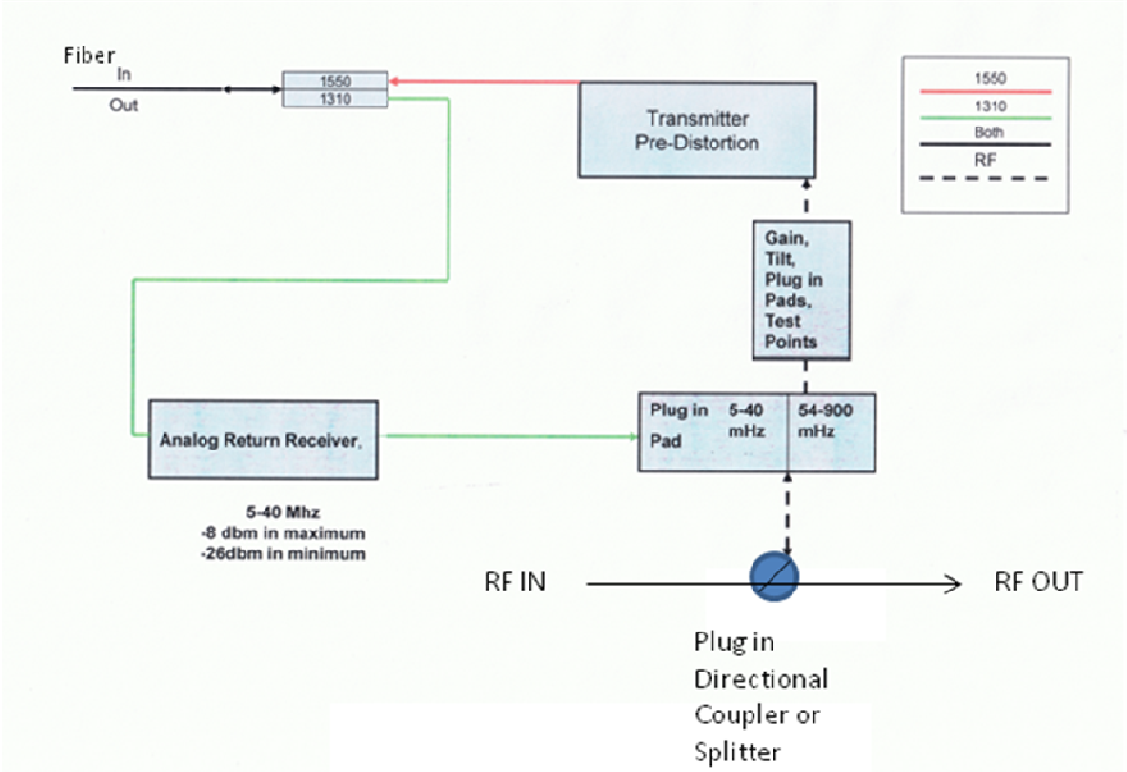
Operational Notes

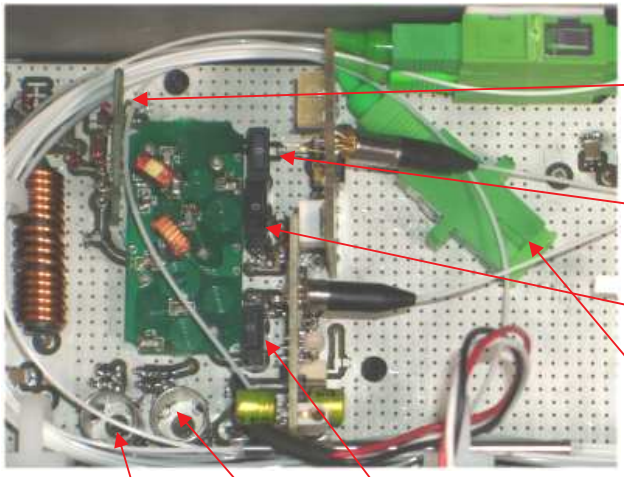
1. In order to make sure that the reflection loss >45dB,we use SC/APC connector (other types may not work). Keep the connector clean when installing. Clean it with degreased cotton with 99% Isopropyl alcohol after several insertions .
2. Do not turn on the Transmitter without the output connected or without protection cover .Otherwise the laser will harm the eyes.
3. Turn the Laser off before disconnecting or connecting from the EDFA output. Failure to do so may cause the connectors to burn.

www.RF2F.com

Notes:

1. **There is approximately a 3 second delay to enable capture of the bursting nature of the incoming light. If there is no data transmitted in over 6 seconds the red light will come on.**


Fiber
In
Out
1550
1310
Transmitter
Pre-Distortion
1550
1310
Both
RF
Gain,
Tilt,
Plug in
Pads,
Test
Points
Analog Return Receiver.
Plug in
Pad
5-40
mHz
54-900
mHz
5-40 Mhz
-8 dbm in maximum
-26dbm in minimum
RF IN
RF OUT
Plug in
Directional
Coupler or
Splitter



Using the input test point set the actual level at the TP to 0 dBmv. You should first plug in the highest value of Directional coupler you can use and keep your highest channel above 0 dBmv. Then use pads and EQ to adjust the level to a FLAT 0 dBmv.

Equalizers are available from Communications Associates

Josh Chandler
Systems Administrator
1750 Coleman Road
Anniston, AL 36207
Phone: 256-835-0900
Fax: 256-835-0992

CA027402 series MICRO CABLE EQ, 1 GHz, 1.0", CA LOGO, GREEN WHOLE 2 - 15dB
Price $5.10 each

JXP 1 inch pads are available from them and others including 4Cable TV.

As Long as there is return traffic present the lights should show a relative level. If there is no return traffic for more that 6 seconds the red LED will come on. The optic Test point will only be accurate if a CW carrier is applied. However it will give a good relative measurement.

Signal Noise Degradation using RF2F Mini

System S/N	Optical Link CNR	Combined Result
42	48	41.03
42	48	41.21
42	48	41.36
43	48	41.80
43	49	42.03
43	50	42.21
44	48	42.54
44	49	42.81
44	50	43.03

Contact the Factory for these and other options:

- Built In Output Splitter