RFLL-20

DEVICE

20 GHz RF over Fiber Lightwave Link

OVERVIEW

The Optilab RFLL-20 series of microwave fiber optic transport system are fiber optic transmitters, receivers, and EDFA sets that form a high-performance RFoF link for 20 GHz. Included are:

- LTC-20 Lightwave transmitter for 20 GHz bandwidth
- MD-20 RF Amplifier for 20 GHz bandwidth
- PD-23-M 23 GHz photodiode module
- Optional EDFA with +16 dBm output power

The units can be used to construct transparent links for antenna remoting and other high-dynamic-range applications. The broad bandwidth supports applications such as electronic warfare systems as well as delay lines and signal processing systems, and the standard link utilizes a single optical fiber, operating at a nominal wavelength of 1550 nm. Wavelength selected lasers on the ITU grid are also available to support multi- channel DWDM applications, while the optional EDFA is used to overcome transmission loss. Contact Optilab for more information.

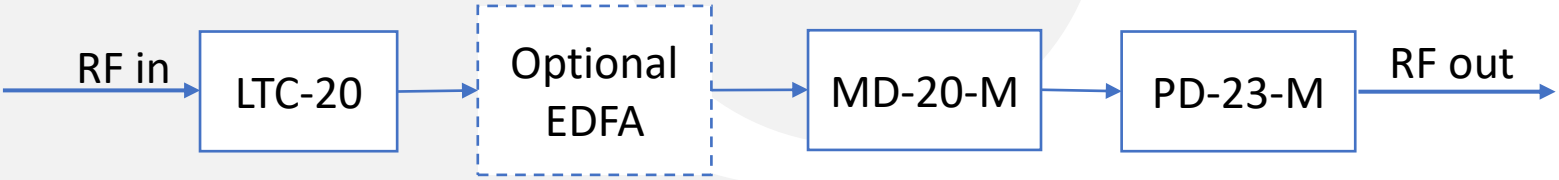
FEATURES

- High Dynamic Range with low RIN Source Laser
- Microprocessor-based control bias and link gain
- DWDM operation for multi-channel capacity
- Housing limits RF and thermal interface
- RFoF Link with 20 GHz Bandwidth
- RS-232 Monitor and Control Interface
- 1 year warranty

USE IN

- Satcom microwave antenna signal distribution
- Broadband delay-line and signal processing
- Phased and interferometric array antenna
- Wideband RF Transmission over Fiber
- RF/IF Signal Distribution
- EW Systems
- Radar system calibration

FUNCTIONAL DIAGRAM



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20 GHZ BROADBAND LINK PERFORMANCE

Frequency Range	0.01 to 20 GHz
RF Input Power	+20 dBm
Wavelength	1550 nm ± 10 nm, ITU wavelength available
Noise Figure	-145 dB/Hz max.
Input IP3	26 dBm @ 10 GHz
Gain Variation	± 0.5 dB over any 1 GHz
1 dB Comp. Level	+20 dBm typ.
2nd Harmonics Distortion	-70 dBc typ.
SFDR	113 dB $Hz^{2/3}$
RF Link Gain @ 2 GHz	-18 dB
IM3 Distortion	< -90 dBc max.

*Please visit Optilab.com for more information on the LTC-20, MD-20-M, PD-23-M, and EDFA.

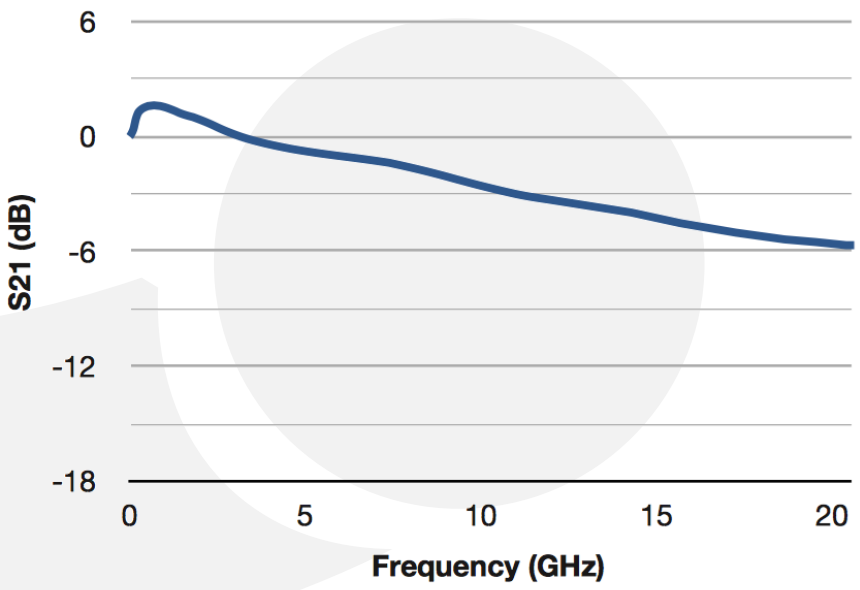
ORDERING OPTIONS

RFLL-20-xx-yy

xx Number of Wavelengths: 1, 4, 8

yy EDFA: 16, +16 dBm EDFA; N, No EDFA

TYPICAL S21 BANDWIDTH



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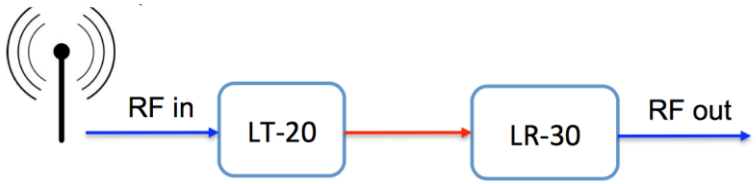
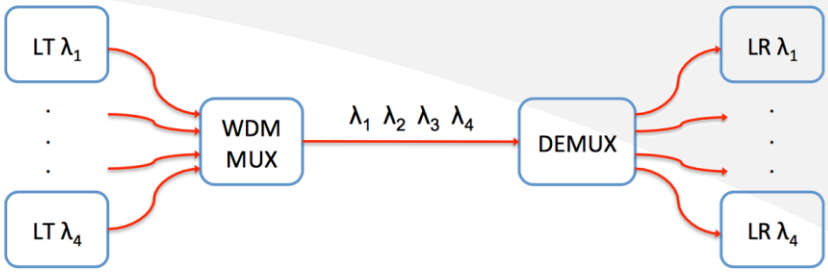
25 GHZ RF OVER FIBER LINK CONFIGURATION

The LR Series can be ordered as RF over Fiber 25 GHz Link. This link, the LL-25 series form a high-performance set that include the 20 GHz transmitter and 30 GHz Amplified Receiver. Below is a diagram of how the RF over Fiber link functions. Go to optilab.com/LL25 for more information.



LINK CONFIGURATION USING MULTIPLE WAVELENGTHS

The LL series of products can have multiple wavelengths integrated using WDM multiplexers. Up to 8 wavelengths can be installed into a single rackmountable chassis. Below is an illustration of a typical 4 wavelength RF over Fiber link using WDM multiplexers.



LONG DISTANCE LINK CONFIGURATION USING MULTIPLE WAVELENGTHS

For longer distances, an EDFA will need to be used to compensate the losses incurred at the WDM mux and demux. The following is a diagram illustrating a system using an EDFA.