RFV-3000
3 GHz L-Band
Optical Transmission System

Transmit 850 MHz to 3000 MHz RF Signals over one Singlemode Fiber

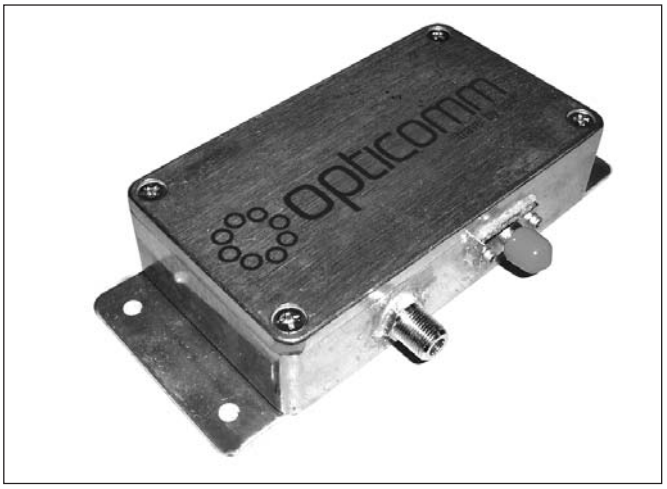
OPTICOMM'S Model RFV-3000 3 GHz L-Band Optical Transport System is a robust, cost-effective and integrated family of product series which provides a high-performance singlemode fiber alternative to coaxial cable for transmission of 850 MHz to 3000 MHz RF signals in a wide variety of communications applications, including L-Band satellite antenna remoting, trunking radio, telemetry tracking and time & frequency reference distribution. The extended frequency range to 3.0 GHz allows this system to accommodate additional transponders coinciding with common European satellite communication applications.

In addition, the enhanced bandwidth to 3 GHz is also unique in that it facilitates stacked LNB applications to accommodate additional transponders containing enhanced DBS programming services (i.e HDTV, local channels, etc.) over singlemode fiber for DBS television distribution in campus, fiber-to-the-premise (FTTx) and multiple dwelling unit (MDU) environments.

System Design

The RFV-3000 Transmitter and Receiver are stand alone units that can be placed on a desktop or shelf or flange-mounted.

(Insert card versions are available upon request)



Features

- Low-Cost and Reliable singlemode fiber alternative to coaxial LNB cabling in SATCOM deployments
- WIDE BANDWIDTH: 850 - 3000 MHz bandwidth at 1310nm, 1550nm or CWDM (ITS 1470-1610nm)
- Designed for simple & flexible network design, easy installation and immunity from EMI/RFI & lightning
- HIGH DYNAMIC RANGE: Up to 20 dB optical loss budget
- Capable of remote LNB powering

Ordering Information

Wavelength and Fiber (nm)	Transmitter (XMT)	Receiver (RCV)	Optical Connector	Optical Budget (dB)	Range (km)	Form Factor
1310 Singlemode	RFV-3000/XMT-L2-XX-SA	RFV-3000/RCV-L2-XX-SA	FC	18	36	Standalone
1310 Singlemode (D)	RFV-3000/XMT-L2D-XX-SA	RFV-3000/RCV-L2D-XX-SA	FC	20	40	Standalone
1550 Singlemode	RFV-3000/XMT-L3-XX-SA	RFV-3000/RCV-L3-XX-SA	FC	19	76	Standalone
1470-1610 SM (CWDM)	RFV-3000/XMT-L4-XX-SA	RFV-3000/RCV-L4-XX-SA	FC	Varies	36-76	Standalone

** Contact Opticomm for other versions available.*
*** XX indicates the type of optical connector. FC is available. (SC optional)*
**** Chromatic dispersion and additional losses should be taken into account; link budget and range may be affected by bandwidth required. Receive dynamic range is -15dB to +3dB.*

800-867-8426 • info@opticomm.com • www.opticomm.com • Contact Opticomm for custom requirements.

Specifications

Optical Performance

Optical Fiber	Singlemode, 9/125 (Corning SMF-28 or equivalent)
Tx/Rx Optical Return Loss	> 55 dB
Tx/Rx Optical Connector	SC/APC (standard) ; FC/APC (optional)
Rx Wavelength (nm)	1270 - 1610
Rx Optical Input Power	-15 to +3 dBm
Rx Alarm (Standalone Only)	Optical Input Power Low (Open Collector Output)
Rx Alarm (3RU Blade Only)	Optical Input Power Low (LED Indicator)

RF Performance***

Frequency (MHz)	850 - 3000	
Amplitude Flatness (dB)***	any 500 MHz / ± 1.5; any 40 MHz / ± 0.35	
Return Loss minimum	10 dB	
I/O Connector/Impedance (ohms)	F-Type female / 75 (standard) ; SMA / 50 (optional)	
Link Gain (dB) @ 25°C minimum***	-4 ± 5	
Gain vs. Temperature (dB/°C) typical***	Tx = 0.12	Rx = 0.09
Noise Figure maximum***	45 dB	
CNR (dB) (BW=27 MHz) @+12 dBmV IN	18.7 typical	17.7 worst Case
@+17 dBmV IN	23.7 typical	22.7 worst Case
@ +7 dBmV IN	13.7 typical	12.7 worst Case
Tx Input IP3 (dBm) minimum***	-9.5 (to -20°C) ; - 12.5 (to -40°C)	
Tx Input 1dB Compr. (dBm) typical***	> -17 (to -20°C) ; > -20 (to -40°C)	
Tx input / Rx output VSWR***	2.0 : 1 / 1.8 / 1	
Tx Max. Total RF Input Power***	-14dBm (or 34.75 dBmV) (composite)	
Tx Max. RF Input per Transponder***	-29 dBm (or 19.75 dBmV) (for 32 Transponders)	

**** NOTE: Specifications cited above @ 12 dB link optical loss and > 55 dB optical return loss. If the link optical loss differs from 12 dB, the RF gain will change 2 dB for each 1 dB of optical loss. (i.e. a link with 6 dB of optical loss will have a minimum RF gain of +3 dB). Also, when optimizing RF performance, the main concern involves setting the RF signal level. Typically, the optimal total RF power into the transmitter should be near -37 dBm per transponder, assuming 32 transponders; this corresponds to a total RF input power level of -22 dBm. Due to the wide dynamic range of this system, the RF input power can deviate from this optimal value and still provide good results.*

Environmental

Operating Temperature (°C)	-40 to +60 (Stand alone)
Storage Temperature (°C)	-45 to +85
Humidity Range (%)	5 to 95 (non-condensing)

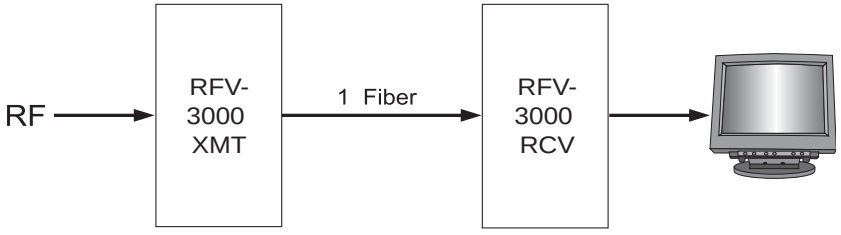
Mechanical

Dimensions	5.253 x 1.253 x 2.536 (134mm x 32mm x 65mm) (W x L x H)
Weight	1.0 lb (454g)

Electrical

Power Input (VDC/mA)	+8 to +24 @ 250 to 85 mA
Power Consumption (W)	< 2 Typical

Sample Configuration



Optiva™ Configurable Communication Platform
Network Management
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CE

FCC PART 15 COMPLIANT

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