



Integrated Microwave Transmitter RACK3000

0.05 – 18 GHz, 1550 nm Externally Modulated Transmitter

The Emcore RACK2501 is an integrated, 1 RU high-performance transmitter with guaranteed performance over the 0.05 – 18 GHz frequency band. It incorporates a high dynamic range externally modulated transmitter and provides +6 dBm minimum of optical output power.

The unit can be used to construct transparent optical links for microwave test cell antenna remoting, microwave signal distribution, microwave delay lines, point-to-point data links and other applications where it is necessary to transport RF and microwave signals over long distances without signal degradation.

The unit operates at a nominal optical wavelength of 1550 nm.

Applications

- Microwave Test Cell Antenna Signal Remoting
- Microwave Data Links
- Broadband Delay-Line and Signal Processing Systems
- Frequency Distribution Systems

Features

- Integrated externally modulated transmitter
- 0.05 – 18 GHz bandwidth
- High dynamic range
- 1 RU rack mount package
- Front panel RF and optical connections

Specifications

Electrical

RF Connectors	SMA (female, 50Ω)
Frequency Range	0.05 to 18 GHz
TX RF Input Power	+25 dBm, max
Input IP3 at 18 GHz	+28 dBm, typical
Input P1dB at 18 GHz	+25 dBm, typical
Noise Figure	49 dB, typical

Optical

Wavelength	1550 ± 6 nm
Connectors	SC/APC
TX Optical Output Power	+6 to +8 dBm
Optical Power Stability	<± 0.5 dBm over temperature and time

Physical

Configuration	Self Contained 1 RU Housing, 19" Rack
Dimensions	1.75" H x 17" W x 14" D
Operating/Storage Temperature	0°C to +50°C
Power Requirements	110 VAC @ 50W

Interface and Control

Front Panel Indicators	Power, Link Status LED
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For more information on this and other products:

Contact Sales at Emcore 626-293-3400, or visit www.emcore.com

Optical Characteristics

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Wavelength	λ	-	1530	1550	1565	nm
Optical Output Power	P_L	-	6	7	8	dBm
Connector Return Loss	-	-	60	--	--	dB
Optical Connector Type		FC/APC				

Note: In order to prevent reflection-induced distortion degradation, the laser should be connected to an optical cable having a return loss of at least 55 dB for discrete reflections and 30 dB for distributed reflections.

RF Characteristics

Parameter	Condition	Min	Typ	Max	Unit
RF Input Impedance	-		50	-	Ω
RF Return Loss		9.5	15		dB
2 nd Harmonic Suppression	RF input 0 dBm		-60	-45	dBc
1 dB Compression Point			+25		dBm
RF Connector	SMA (Female) Type				

Link Performance (Measured with 0 dBm TX RF Input and 0 dBm Optical Receiver Input)

Parameter	Symbol	Condition	Typ	Unit
Link Gain	G	@ 10 GHz	-42	dB
Gain Variation		50 MHz to 18 GHz	7	dB
Input IP3	IIP3	@ 10 GHz	+28	dBm
Noise Figure	NF	@ 10 GHz	49	dB
Spurious Free Dynamic Range	SFDR	@ 10 GHz	98	dB/Hz ^{2/3}

Ordering Information

RACK3000

Laser Safety

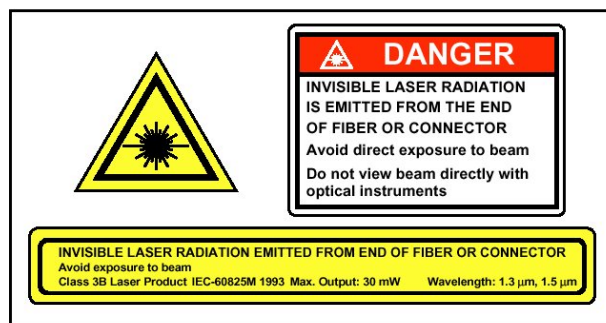
Class IIIb Laser Product

FDA/CDRH Class IIIb laser product. All transmitter versions are Class IIIB laser products per CDRH, 21 CFR 2040 Laser Safety requirements. All versions are Class 3B laser products per IEC*60825-1:1993.

Maximum Power = 8 dBm

Caution: Use of controls, adjustments and procedures other than those specified herein may result in hazardous laser radiation exposure.

*IEC is a registered trademark of the International Electrotechnical Commission.



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