



## Integrated Microwave Transmitter and Receiver Units: RACK2300-08 and RACK3030-08

*1RU 0.1 – 20 GHz, 1550 nm Externally Modulated Transmitter with Integrated RF Preamp and 1 RU 0.1 – 20 GHz Receiver with Integrated RF Postamp*

### Applications

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

### Features

- Wide range of RF input levels
- TX with integrated externally modulated transmitter & RF preamp
- RX with high performance photodiode and RF post amp
- 1 RU rack mount packages
- Front panel RF and optical connections

The Emcore RACK2300-08 and RACK3030-08 are integrated, 1 RU high-performance transmitters and receivers with guaranteed performance over the 0.1 – 20 GHz frequency band. The units are used as TX-RX pairs to meet the stated link performance. The transmitter incorporates an externally modulated transmitter and RF preamplifier. The optical receiver includes a high performance receiver and RF post amplifier. The transmitter provides +8 dBm minimum of optical output power. At 0 dBm received optical power, the link provides RF gain of 0 dB.

The units can be used to construct transparent optical links for RF test cells, antenna remoting, RF signal distribution, RF delay lines, point-to-point data links and other applications where it is necessary to transport RF signals over long distances with minimal signal degradation.

The units operate at a nominal optical wavelength of 1550 nm.

### Specifications

#### Electrical

RF Connectors	SMA (female, 50Ω)
Frequency Range	0.1 to 20 GHz
TX RF Input Power	+10 dBm, max
Input IP3	+20 dBm, typical
Input P1dB	+10 dBm, typical
RF Link Gain	0 dB, typical
Input VSWR	9 dB, min
Output VSWR	7 dB, min

#### Optical

TX Wavelength	1520 – 1580 nm
Connectors	SC/APC
TX Optical Output Power	+6 dBm min
RX Optical Input Power	+12 dBm max

#### 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	TX: 110 VAC @ 50W; RX: 110 VAC @25W

#### Interface and Control

Front Panel Controls	Power Switch
Front Panel Indicators	Illuminated Power Switch, Link Status LED (RX only)

**For more information on this and other products:**

Contact Sales at Emcore 626-293-3400, or visit [www.emcore.com](http://www.emcore.com)

**Link Performance (RACK2300-08 TX with 0dBm Optical Input at RACK3030-08 Receiver)**

Note: Link specifications apply only to mated pair of RACK2300 TX and RACK3030 RX

Parameter	Symbol	Condition	Typ	Unit
Link Gain	G	10 GHz	0	dB
Input 1 dB Compression Point	P1dB	1 - 20 GHz	+10	dBm
Input IP3	IIP3	@ 1 – 20 GHz (2) 0 dBm Tones	+20	dBm
2 <sup>nd</sup> Harmonic Suppression		0 dBm RF input	<60	dBc
Gain Slope		1 GHz to 18 GHz	<15	dB
		0.1 GHz to 22 GHz	<20	
Noise Figure	NF	1 - 20 GHz	<50	dB
Spur Free Dynamic Range	SFDR		98	dB-Hz <sup>2/3</sup>
System Noise Floor	NFL	1 – 20 GHz	≤ -90	dBm/MHz

**Ordering Information**

RACK2300-08      0.1 – 20 GHz 1 RU Amplified Microwave Transmitter

RACK3030-08      0.1 – 20 GHz 1 RU Amplified Microwave Receiver

**Laser Safety**

**No laser power key switch provided per customer requirement**

**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 = 10 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.

