OSD9003/OSD9004 RF over FIBER TRANSMISSION SYSTEM

APPLICATIONS

- Any linear RF transmission over fiber from 10 to 2500MHz such as antenna remoting and EMI/EMC measurements
- HF radio systems between 10 and 80MHz
- Mobile RF systems between 800 and 1900MHz
- UHF/VHF radio links

FEATURES AND BENEFITS

- Standard optical and RF connectors simplify system integration
- Operates over from at least 40km of singlemode cable and optionally available to operate over at least 80km
- High linearity and low noise DFB laser transmitter and ultra linear PIN diode receiver enable very wide dynamic range links
- Manual input level control on transmitter and user selectable manual or automatic output level control on the receiver enables flexible system integration
- Operates from -20°C to +65°C so can be installed in almost any environment
- Bargraph display of input RF level on the OSD9003 and of the input optical signal level on the OSD9004 aids simple and effective system setup
- Operate with non-critical power voltages
- Extremely rugged metal case
- Optional remote monitoring/alarming capability

DESCRIPTION

The OSD9003 transmitter and OSD9004 receiver system provides an extremely linear, wideband transmission capability which enables its use in a variety of RF over fiber applications such as paging systems and UHF mobile radio networks as well as its primary applications of cellular RF trunking at 800-1000MHz and 1700-1900MHz.

Both units employ very linear circuitry to ensure very wide dynamic range performance as required in uplink applications. The system is completely format independent so can support any current or proposed mobile radio or cellular system.

The OSD9003 employs a very wideband laser driver and DFB laser and the OSD9004 is based on a wideband balanced PIN photodiode design all of which ensures outstanding system linearity, noise performance and dynamic range. The OSD9003 has manual input level adjustment over a range of 31dB.

A very convenient feature is user selectable automatic (ALC) or manual output RF level adjustment on the OSD9004. This ALC is based on the average input optical level and provides a 31dB control range of the RF output signal.

The OSD9003 and OSD9004 are designed to work together but can be used with most other wideband fiber products.

They are packaged in very small, rugged standalone enclosures operating from a wide range of input power supply voltages, allowing totally non-critical powering.

The RF circuitry on the OSD9003 and OSD9004 have excellent RF shielding. This, combined with their wide operating range of -20 to +65ºC, means the units can be installed in almost any industrial, unconditioned environment.

ORDERING INFORMATION

OSD9003	RFoF Transmitter module with manual input level control
OSD9004	RFoF Receiver module with manual or automatic output level control

SPECIFICATIONS

OPTICAL

Optical Connector	SC/APC (FC/APC is optional)
Optical Return Loss	>45dB

ELECTRICAL

RF Input/Output Impedance	50Ω nominal, unbalanced
RF Input/Output Return Loss	>10dB
RF Input/Output Connector	SMA female
System Bandwidth	10 - 2500MHz ± 3.0dB
System Gain	17dB with both Tx and Rx attenuators set to 0dB
System Noise Figure	<20dB (0dB optical loss, attenuators set to 0dB)
System Phase Noise	None, the system employs direct intensity modulation of the optical carrier

OSD9003

Operating Wavelength	1310 ± 20nm nominal but is available in all 18 CWDM wavelengths from 1270 to 1610nm
Optical Output Power	+3.0 ± 1.0dBm
Input RF Level Control	Manually adjustable in 1dB increments over a 31dB range using the front panel DIP switch
Input 1dB Compression Point	>-3dBm (Attenuation set to 0dB)
Input Third Order Intercept Point	>+10dBm (Attenuation set to 0dB)
Indicators	Electrical input level (4 level green bargraph, from -20dBm to +10dBm with red out of range for <-30dBm or >+20dBm) Laser fail alarm
Alarm	Laser fail

OSD9004

Operating Wavelength	1270 to 1610nm
Output RF Level Control	Automatic over a 31dB range or manually adjustable in 1dB increments using the front panel DIP switch
Output 1dB Compression Point	>+17dBm (Attenuation set to 0dB)
Output Third Order Intercept Point	>+32dBm (Attenuation set to 0dB)
Indicators	Optical input level (4 level green bargraph, from -15 to 0dBm with red out of range for <-17dBm or >+3dBm)
Alarm	Loss of optical input

PHYSICAL

Operating Temperature Range	-20°C to +65°C
Relative Humidity	0 to 95% non-condensing
Power Requirements	+9V to 28V DC @ 3VA
Power and Alarm Connector	3 way 3.5mm terminal block with spring clamps on module
Dimensions (mm)	60W x 94D x 26H
Weight (kg)	0.3