

# FINISAR®

## Key Features

- ▶ Analog Carrier Loading from 50 MHz to 3000 MHz
- ▶ Wavelengths can be tuned across the entire C-band at 100 GHz ITU DWDM spacings
- ▶ Tunes to different wavelength in less than 0.5 seconds
- ▶ Packaged in standard XFP pluggable optical module
- ▶ Built-in digital diagnostic functions
- ▶ Link distance up to 15 kilometers
- ▶ LC/APC optical connection
- ▶ Power consumption less than 3.5 Watts
- ▶ Operating temperature range of 0°C to 65°C
- ▶ Compliant with SCTE 195 2013: Interface Specifications for an RF-Modulated Small Form Factor Pluggable Optical Module
- ▶ Mechanical dimensions compliant with 10 Gigabit Small Form Factor Pluggable Module (XFP) Multi-Source Agreement (INF-8077i, Rev. 4.5)

## Applications

- ▶ Antenna Remoting
- ▶ Distributed Antenna Systems (DAS) to Extend Wireless Infrastructure
- ▶ 1550nm Broadcast with DWDM Narrowcast Overlay architectures
- ▶ All-Digital QAM networks

## 50 MHz to 3000 MHz Pluggable XFP-RF Transmitter

### Wavelength tunable, 3 GHz pluggable optical transmitter module

#### Overview

Finisar's XFP-RF transmitter is a small form factor hot-pluggable optical module that is compliant with interface specifications developed by the Society of Cable Telecommunications Engineers (SCTE). It can be fully loaded with analog carriers from 50 MHz to 3000 MHz in order to enable operators to effectively utilize a broad range of frequencies when designing distributed antenna systems and RF Over Fiber networks. The small XFP module significantly reduces power consumption and increases density for downstream transmitters.

The transmitter wavelength can be tuned to any of the 43 different Dense Wavelength Division Multiplexing (DWDM) wavelengths across the entire C-band in less than 500 ms. This increases operational efficiencies in deploying DWDM networks and reduces inventory of transmitters at different fixed wavelengths. Wavelength tunability also opens the possibility of novel HFC architectures that can dynamically route services and increase bandwidth capacity in the cable operator's access network.

#### Key Advantages

- ▶ 2x to 4x density improvement over current transmitter solutions
- ▶ At least 50% less power consumption per transmitter
- ▶ Enables future HFC architectures to route services dynamically by changing the wavelength of the transmitter
- ▶ Enables pluggable optics to be utilized directly in next-generation Cable Modem Termination Systems and QAM modulators



# 50 MHz to 3000 MHz Pluggable XFP-RF HFC Transmitter

## Specifications

Parameter	Value
Optical Output Power	4 dBm minimum
Optical Wavelengths	ITU DWDM Channels 18 to 60 (1528.77 nm to 1529.55 nm)
Center Wavelength Spacing	100 GHz
Wavelength Tuning Time	0.5 seconds maximum
Optical Connection	LC/APC receptacle
Optical Fiber Distance	0 km to 15 km
Fiber Dispersion Compensation, Internal or External	Not applicable
SBS Suppression	+12 typical, with optical amplifier
RF Bandwidth	50 MHz to 3000 MHz
Link Gain*	>0dB, 50 MHz to 3000 MHz
Noise Figure*	<28dB, 50 MHz to 2200 MHz; <30 dB, 2200 MHz to 3000 MHz
SFDR (3rds)*	>108 dB/Hz, 50 MHz to 2200 MHz >103 dB/Hz, 2200 MHz to 3000 MHz
IIP3*	>8 db, 50 MHz to 2200 MHz >6 dB, 2200 MHz to 3000 MHz
RF Input Level	Dependent on host module (-20 dBm composite into XFP-RF)
RF Impedance	Dependent on host module (100 $\Omega$ differential or 50 $\Omega$ single-ended into XFP-RF)
RF Flatness	2.0 dB max, peak to peak, 50 MHz to 3000 MHz
RF Input Return Loss	10 dB min, 50 MHz to 3000 MHz
Dimensions	78 mm (L) X 18.35 mm (W) X 8.5 mm (H) 3.0 in (L) X 0.7 in (W) X 0.3 in (H)
Mounting	XFP cage assembly on host module
Operating Temperature Range	0°C to 65°C
Storage Temperature Range	-40°C to 85°C
Power Consumption	3.5 Watts maximum
Data/Control	Digital diagnostic functions via two-wire serial interface

\* With Finisar Optical Receiver. 1 km of SMF-28 single-mode fiber. Host system or chassis may degrade performance.

## Product Selection

Part Number	Description
XT04AARTENJD1860	XFP-RF Pluggable Tx, Wavelength-Tunable, 50 MHz to 3000 MHz, +4 dBm
XT04AAR5ENJDxxx	XFP-RF Pluggable Tx, Fixed Wavelength, 50 MHz to 3000 MHz, +4 dBm

xxx – fixed wavelength designated with ITU DWDM channel number



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