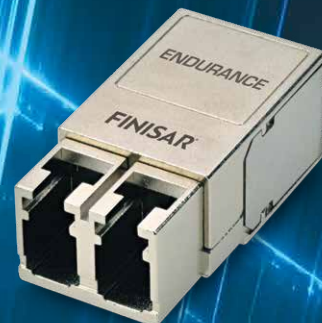


# Solutions Guide

## Fiber Optics for Military Applications



**FINISAR<sup>®</sup>**



# Fiber Optics for Military Applications

Finisar designs and manufactures high-performance and reliable fiber optics products for military applications. With more than 25 years experience in the optical communications industry, Finisar is recognized as the world's largest supplier and volume leader of optical components and sub-systems. The products featured in this solutions guide provide an overview of some optics technology best suited for advanced military applications.

## Endurance® Rugged, Compact 10 Gb/s Transceiver

Finisar's Endurance transceiver provides bi-directional optical data links at data rates from 125 Mb/s up to 10 Gb/s for harsh environments. It is interoperable with standard SFP/SFP+ pluggable modules and contains 2-wire serial communication interface for digital control and diagnostics.

Endurance operates at a wide temperature range from -40C to 85C and available with an optional conformal coating resistant to corrosive environments. It mounts directly to the Printed Circuit Board to handle excessive shock and vibration. Finisar's 850nm oxide Vertical Cavity Surface Emitting Laser (VCSEL) is best-in-class for reliability and has excellent performance over temperature. Endurance has been qualified to additional military specifications for long-term aging, salt spray and vibration.

At half the length of Small-Form Factor (SFF) modules, Endurance saves space on Printed Circuit Boards and allows multiple modules to be mounted side-by-side for high-density edge port counts.



SFF

Endurance

## 3 GHz XFP-RF Wavelength-Tunable Transmitters

Finisar's XFP-RF transmitter is a small form factor hot-pluggable optical module that can be fully loaded with analog carriers from 50 MHz to 3000 MHz on a single wavelength for RF-over-Fiber applications. 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. With 43 transmitters, this allows up to 43 optical signals, each with a full RF load up to 3GHz, to be multiplexed onto a single optical fiber to provide high bandwidth capacity.

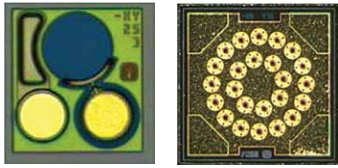


## Advanced RF Optical Detectors and Receivers

Finisar's single and balanced photodetectors, which leverage advanced waveguide integrated photodiodes, offer a highly-linear frequency response from DC to over 100 GHz and high RF output power levels for Analog RF-over-Fiber applications. The detectors operate at various wavelengths including 1310 nm and 1550 nm. Finisar also offers receivers mating these advanced photodetectors with high-performance transimpedance amplifiers.

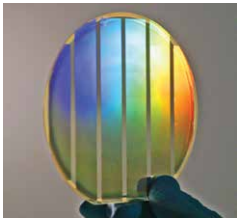


## Optical Sensors and Discrete Components



Finisar offers a broad array of optical sources that can be used for developing sensors for reflective and scattering applications such as gesture recognition, motion sensors, velocity measurement, 3D scanning, and turbidity measurements. Finisar's laser components can also be utilized for atomic clocks, communication links in hazardous environments with transmitting power over fiber to operate the remote site and free-space, line-of-site communication data links.

Finisar's VCSELs products include single mode and multi-mode devices, spanning wavelength ranges from 780 to 1000nm and powers from sub-mW to >1W and can operate reliably across the entire industrial temperature range in hermetic and non-hermetic environments. Finisar also has custom optical sensor design and packaging capabilities that can deliver a product as simple as a TO-46 can with a VCSEL die or as complex as a touch-less velocity sensor with integrated electronics delivering an analog signal output.



## High-Efficiency Diffractive Gratings

LightSmyth™ Technologies, a Finisar Company, provides high efficiency diffraction gratings for optical telecommunications, defense and biological markets. LightSmyth offers more than 100 grating products based on its record-breaking transmission grating platform. This includes gratings for pulse compression and high-power beam combining utilized in high-power industrial lasers and high energy laser (HEL) weapons.



## Optical Isolators

Finisar's optical isolators have low insertion loss and high isolation to prevent optical feedback into lasers and maintain optimal and consistent link performance. A proprietary bonding process, combined with years of volume manufacturing experience, results in high reliability. The types of isolators include free-space isolators, isolators with fiber pigtails, and receptacle isolators.



## Optical Passives

Finisar's Dense Wavelength Division Multiplexers (DWDM) enables up to 48 wavelengths to be combined onto a single fiber for high-capacity transport. They utilize Thin Film Filter technology which offers flexibility from single to high port count and high integration from single MUX or DeMUX to OADM (Optical Add-Drop Multiplexer) feature in one module. This product requires no electrical power, and offers a combination of low loss and high channel isolation along with long term reliability.

Technology Innovator.  
Broad Product Portfolio.  
Trusted Partner.

**FINISAR**<sup>®</sup>

1389 Moffett Park Drive  
Sunnyvale, CA 94089-1133  
[www.finisar.com](http://www.finisar.com)

Telephone: +1 408-548-1000  
Sales: +1 408-541-5690  
Email: [sales@finisar.com](mailto:sales@finisar.com)



Visit Our Website

©2016 Finisar Corporation. All rights reserved. Finisar and Endurance are registered trademarks of Finisar Corporation. Features and specifications are subject to change without notice. SG-MIL-1016