



RealTime-OTDR™ for Distributed Ambience Sensing (DAS) Applications



XFP OTDR module



Evaluation board

Introduction

Distributed ambience sensing (DAS) using OTDR technology has potential in many mission critical structural and industrial applications. At LAMBDA SCOPE, we have developed a pluggable OTDR in XFP module that is designed specifically for the new fast optical network monitoring applications. Unlike traditional bench top or handheld OTDRs, which is very slow in data acquisition, our *RealTime*-OTDR can reach the refresh rate of 1Hz over 5km distance. Using this technology, ambient

variance along the length optical fiber, such as temperature variation, vibrations, even strain can be monitored in real time by the network operators.

The device is packaged in the standard XFP form factor. The data communication is through I2C interface. The data format follows the standard .SOR format, which can be read by OTDR reader software.

Key Features

- Very fast (1Hz) data acquisition rate
- Full OTDR functions in small pluggable XFP form factor
- Compliance with GR-196 and SR-4731 OTDR Testing Standards
- ROHS compliant
- Operational temperature range 0 to 85 °C
- No additional special equipment needed, plug-‘n-play

Applications

- Distributed network disturbance detection (temperature, vibration, intrusion, etc)
- Distributed remote fiber status monitoring
- Smart structures sensors

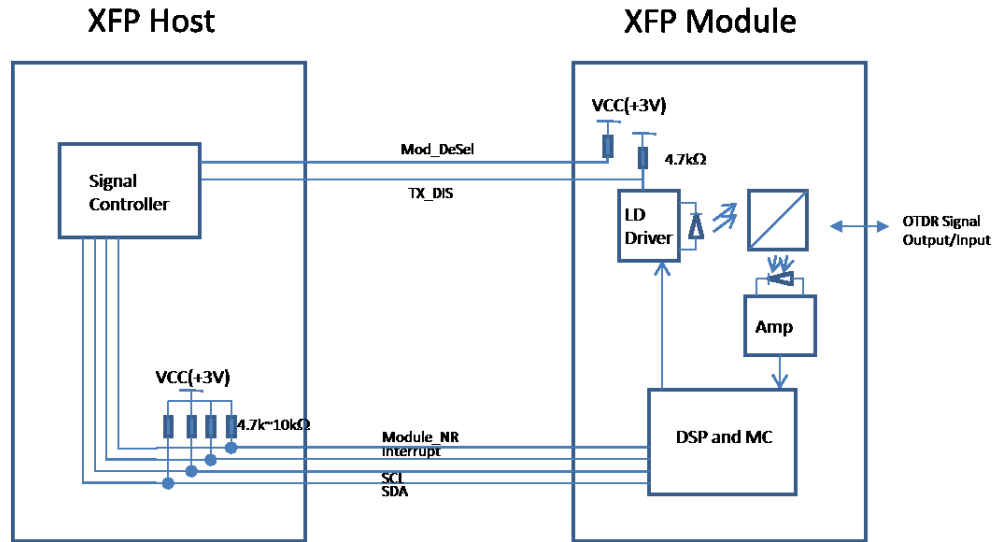
Optical Specifications

Emitter Type	DFB LD	
Center Wavelength (λ_c) (nm)	1590 (or special request)	
Wavelength Band	$\lambda_c \pm 10\text{nm}$	
Fiber Type	Single Mode (MM optional)	
Average Tx Power (dBm)	Typ. 0 Max. 3	
OTDR Distance (km)	5	20
Distance Resolution (m)	0.1	0.5
Dead Zone (m)	5	5
Refreshing Rate (Hz)	1	0.2

General Characteristics

Mechanical Dimensions	XFP MSA Form Factor
Laser Safety	Class I
Connector Type	LC
Warm-up Time (min)	4
Interfaces	I2C
Power Consumption	3 W (peak), 0.5 W (idle)
Operating Temperature (°C)	0 to 85
Storage Temperature (°C)	-40 to 85

Recommended Interface Circuit



Ordering Information

The part numbering scheme for LAMBDA SCOPE products is as follows.

RT-OTDR-xxxx-LC (where xxxx is wavelength in nm)

XFP-OTDR-HOST (for evaluation board and Data Reader software)

Evaluation Board

A fully functional evaluation board is available for order. It demonstrates the *RealTime*-OTDR capabilities of our OTDR XFP modules, as well as the key features that support the performance enhancement in our products compared to traditional OTDR. For example, the real time measurements, small dead zone, wide dynamic range, etc. It is recommended that first time users order the evaluation board along with OTDR in XFP module.