

VS-EDFA : Erbium Doped Fiber Amplifier Module



Bench top EDFA training system is designed to understand the principles of Optical Amplification and provides hands-on experience in building Erbium Doped Amplifier. This system enables the student to measure the optical amplifier characteristics under forward and backward pumping schemes.

SPECIFICATIONS

This modular EDFA Training System consists of

1. LASER DIODE@1550 nm

- 1.25 Gbps Laser Diode Module at 1550nm
- In built Isolator
- Threshold Current I_{th} : 10 mA Typical
- Output power : @ $I_{th} + 30$ mA -> 0.7 mW
@ ~ 58 mA-> 1.4 mW

2. PUMP LASER@ 980 nm

- Up to 100mW 980nm Pump Module
- Maximum Operating Power : 100mW
- Center wavelength : Min 970nm
Max 980nm
- Optical Connector : SC

3. OPTICAL DETECTOR

- 1.5 GHz InGaAs PIN Photodiode Module.
- Responsivity : Typical 0.9 A/W in 9/125 μ m
Fiber
- Spectral Range : 1250nm to 1600nm
- Reverse Voltage : 30 V max.
- Optical Connector : SC

4. WAVELENGTH DIVISION MULTIPLEXER

- Operating Wavelength(nm) : 980/1550
- Max. Insertion Loss (dB) : 0.20
- Isolation (dB) >20
- Polarization Sensitivity(dB) : <0.05

5. ERBIUM DOPED FIBER

- C – Band Single Mode Fiber
- Peak Absorption: 4.5-5.5 dB/m @980 nm
5.4-7.1 dB/m @1531 nm

6. OPTICAL FILTER MODULE

- Center Wavelength : 1550nm @ 2nm BW

7. VARIABLE ATTENUATOR

- Attenuation Range:0.8 to 60 dB

Software

- User friendly GUI for monitoring and controlling of EDFA system
- Operating modes like CW mode, VI characteristics mode, Internal & External Modulation.
- LASER controls like Supply ON/OFF, wavelength selection & driving current selection.
- Real time output signal monitoring of Photo-detector.
- Graphical representation: XY plot of VI characteristics & Internal Modulation.
- COM Settings : USB 2.0

EXPERIMENTS

- Measuring Small-Signal Gain
- Measuring Gain Saturation
- Measuring Saturation Output Power
- Measuring Pump Saturation
- Measurements under Modulation.
- Implementation of Forward Pumping and Backward Pumping.

