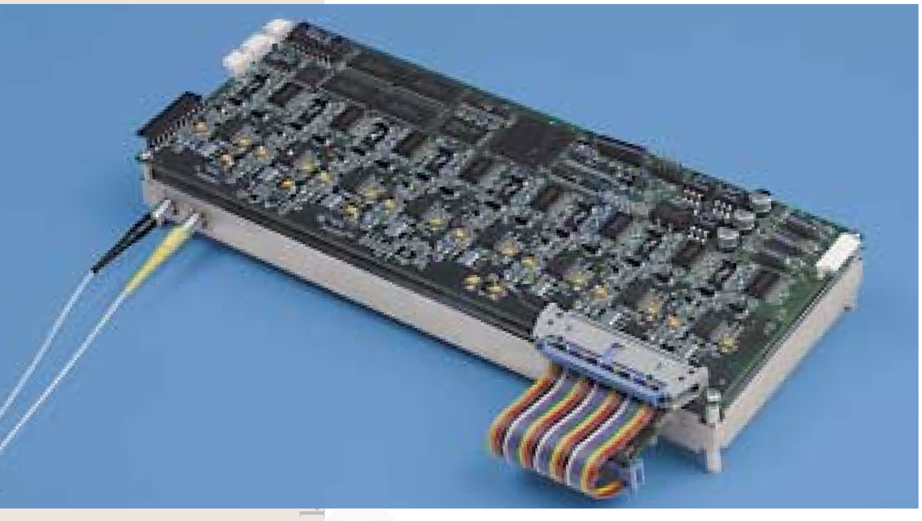
p r e l i m i n a r y d a t a

DGEP™ Dynamic Spectral Equalizers



Novera Optics™ DGEP™ dynamic spectral equalizers are modular subsystems that provide gain flattening and tilt control in optical networks. DGEP equalizers utilize patented all-fiber acousto-optical filter technology to accomplish dynamic optical filtering *in-the-fiber,* delivering high performance with low insertion loss. Eight software-controlled optical notch filters operate in a closed-loop system. When inserted into the mid-stage of EDFA line amplifiers, DGEP equalizers provide finely-tunable compensation of spectral impairments in either the C or L Bands.

DGEP equalizers feature low insertion loss, low polarization dependence, and operate over a broad wavelength range. Operation is line rate and channel spacing independent. A sophisticated control algorithm accepts spectral data (power per channel) from the user's optical spectral monitor via an RS-232 interface, computes filter parameters, and adjusts the tunable optical filters to achieve the desired spectral characteristics. In normal operation, DGEP modules run in continuous optical update mode and deliver a flat spectrum within five iterations (typical) from initialization; default settings may be user-overridden to permit filter updates upon command or to custom tailor the shape of the output spectrum. Low-profile packaging permits mounting on cards spaced as closely as 1". Custom modifications are available to meet application specific requirements. DGEP equalizers are designed to the intent of Telecordia GR-1209 and GR-1221.

novera optics™

dynamic solutions for dynamic networks

Features

- 8 optical notch filters provide up to 10 dB attenuation
- Low insertion loss
- Very high insertion loss uniformity
- Low PDL
- Data rate and channel spacing independent
- No interruption of optical signal upon electrical power loss
- C or L Band modules
- Low profile package

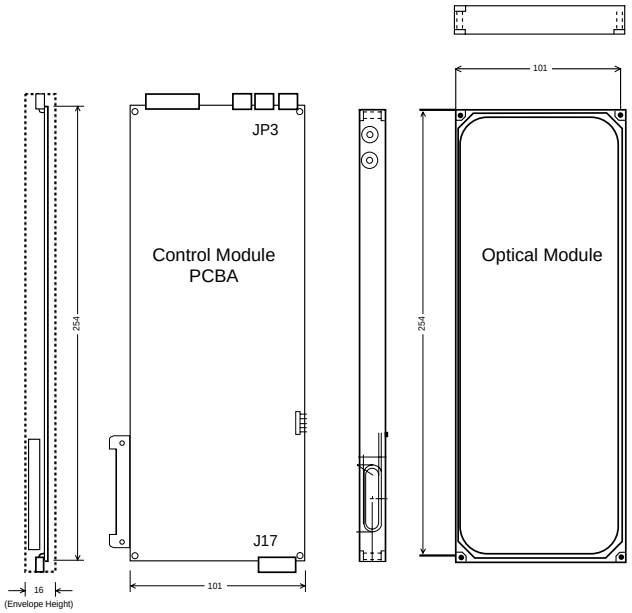
Applications

- Gain flattening and gain shape control in EDFAs
- Elimination of accumulated gain ripple in Long Haul/ULH systems
- Spectral tilt control in transport systems

Preliminary Specifications

Tunable Notch Filters	8 (4 at 4 nm and 4 at 7 nm typ. width)
Wavelength Range	
DGEP-8-C-XXXX series	1530 —1562 nm C Band
DGEP-8-L-XXXX series	1570 — 1605 nm L Band
Dynamic Range (attenuation range)	0 — 10 dB
Minimum Attenuation Step	<0.1 dB
Insertion Loss	<3.8 dB
Polarization Dependent Loss	0.15 dB at 0 dB attenuation 0.25 dB at maximum attenuation
PMD	<0.5 ps
Chromatic Dispersion	<15 ps/nm
Optical Return Loss	>40 dB
Maximum Optical Input Power	25 dBm
Digital Interface	RS-232
Power Requirements	–12V, 1.5A
	+5V, 2.1A
Power Consumption	48W at maximum attenuation
Operating Temperature	0 — 65 deg C
Storage Temperature	-40 to +85 deg C
Dimensions	
Optical module	4 x 10 x 0.63 inches (approx. 101 x 254 x 16 mm)
Control module PCB	4 x 10 inches
Optical Connectors	Customer specified

Outline Drawing – DGEP Control Module PCBA and Optical Module

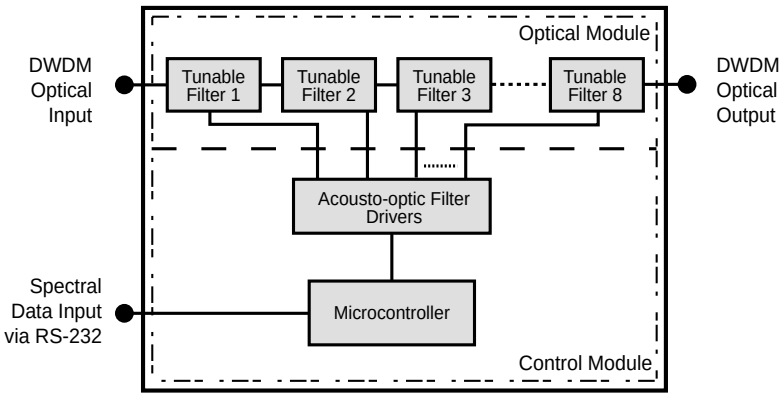


Dimensions in mm

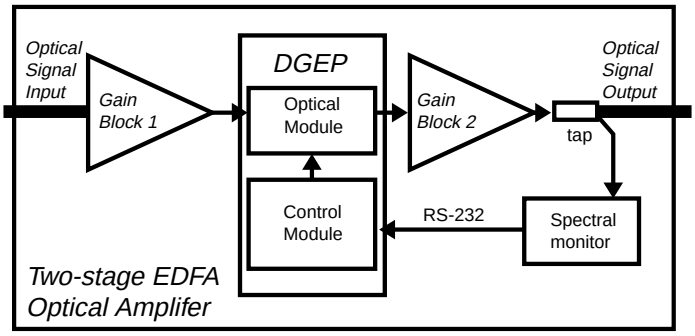
J17 - Power AMP 640457-8

JP3 – RS-232 I/O AMP 640457-4

DGEP Equalizer Functional Block Diagram



Typical application diagram



novera optics™

dynamic solutions for dynamic networks

Novera Optics, Inc.
401 Charcot Avenue • San Jose, CA 95131
tel: 408-894-3300 • fax: 408-577-1811
www.noveraoptics.com • sales@noveraoptics.com

Ordering information: The above specification is a guide to the operating parameters that can be achieved with the DGEP dynamic spectral equalizers. Please contact the sales department at Novera Optics (sales@noveraoptics.com) to obtain the latest specifications and also to discuss any issues regarding customization of these units to meet specific system needs.