

# VCB Series Voltage Controlled Attenuators

## Description

The VCB Series attenuators are specifically designed for highly reliable optical power control in network applications. They are second-generation voltage controlled attenuators that incorporate several improved features, including hermetic packaging and reduced size. They also offer a high degree of flexibility in configuration to suit different applications.

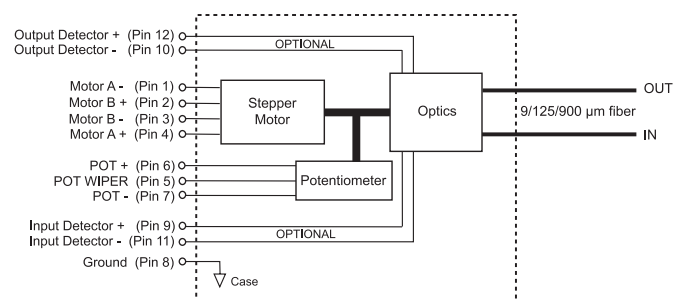
Each attenuator is based on a neutral density filter driven by a stepper motor. The driver for the stepper motor is user supplied to move the motor up or down in uniform step sizes, offering fine resolution. Latching operation is a standard feature; upon removal of the drive voltage, the most recent attenuation setting is retained.

Versions of the VCB attenuators are available that monitor the attenuator setting, the output optical power, and/or the input optical power without the need for external tap couplers.

The attenuators can withstand the diverse environmental conditions encountered in network applications, ensuring high reliability, particularly during long quiescent periods.

The VCB attenuators are Bellcore 1209 qualified.

## Configuration



## Key Features

- High reliability for network applications
- Hermetically sealed
- Small size
- Optional integrated optical taps
- Potentiometer feedback to monitor attenuator settings
- Mountable on printed circuit board (PCB)
- Latching capability
- Single or multichannel applications
- Low loss

## Applications

- Power equalization in multichannel optically amplified networks
- Gain-tilt control in optical amplifiers
- Power control into narrowband WDMs and configurable networks
- Power control into receivers
- Local power monitoring and feedback attenuator settings using built-in input/output taps

# Specifications

Parameter		Specification
Optimized wavelength range		1525 to 1575 nm
Attenuation range		≥30 dB
Attenuation resolution		≤0.1 dB
Minimum insertion loss <sup>1</sup>	straight-through channel <sup>2</sup>	≤0.6 dB
	with input or output monitoring tap detector	≤1.2 dB
	with input and output monitoring tap detectors	≤1.6 dB
Temperature dependence of attenuation <sup>3</sup>		≤0.15 dB
Wavelength dependence of attenuation	flatness	0.1 dB or 0.05 dB +1% of attenuation, whichever is greater
	ripple <sup>2</sup>	≤0.05 dB
Polarization dependent loss <sup>1,4</sup>		≤0.15 dB
Polarization mode dispersion		≤0.10 ps
Return loss <sup>1</sup>		≥55 dB
Response speed <sup>5</sup>		≤100 ms
Repeatability of attenuation setting		≤0.1 dB
Backlash in attenuation setting		≤0.2 dB
Fiber type		SMF-28 with 900 µm buffered jacket
Maximum optical power		50 mW
Dimensions (WxHxD) <sup>6</sup>		25 x 12 x 50 mm
Operating temperature		-5 to 70 °C
Storage temperature		-40 to 85 °C

1. Excluding connectors.
2. Tapless model.
3. Relative to 23°C.
4. For attenuation up to 15 dB over the optimized wavelength range.
5. Considering 3 dB attenuation change.
6. Excluding strain relief and connector pins.

# Ordering Information

Indicate your requirements by selecting one option from each configuration table. Please print the corresponding codes in the available boxes to form your part number. For more information on this or other products and their availability, please contact your local JDS FITEL representative, or JDS FITEL directly at (613)727-1303, or by fax at (613)727-8284, or via e-mail at sales@jdsfitel.com.

Sample: VCB3+1NC1.0NC1.0NC

VCB  +1

Code	Filter
N	Normal

Code	Fiber Type
C	9/125/900 µm

Code	Tap
0	Without taps
1	With input tap only
2	With output tap only
3	With input and output taps

Code	Length 1 in Meters
0.1	0.1
...	...
1.0	1.0 (standard)
...	...
9.9	9.9

Code	Connector Type 1
NC	No connector
FP	FC/HPC
FA	FC/APC
SC	SC/HPC
SU	SC/APC
SP	ST/HPC

Code	Length 2 in Meters
0.1	0.1
...	...
1.0	1.0 (standard)
...	...
9.9	9.9

Code	Connector Type 2
NC	No connector
FP	FC/HPC
FA	FC/APC
SC	SC/HPC
SU	SC/APC
SP	ST/HPC

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