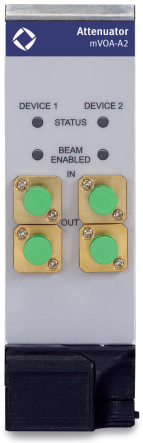
MAP Variable Optical Attenuator
(mVOA-A2)



Key Features

- **Ultra low insertion loss (<1.0 dB) and outstanding spectral uniformity**
- **Fastest transition speed in its class (up to 25 dB/s)**
- **Configurable by user at time of order (fiber type, density, built-in options, high power option)**
- **Optional built-in power monitor provides comprehensive closed-loop power control settings**
- **Optional higher power capability can withstand up to 2W input power for single-mode fiber (500 mW for MMF)**
- **Can be automated when used with MAP-200 LXI-compliant interfaces and IVI drivers**

Applications

- Transmitter dispersion testing and eye mask testing
- Receiver sensitivity testing
- EDFA noise figure and gain flatness testing
- Power meter calibration
- Loss simulation

Safety Information

- The MAP Variable Optical Attenuator, when installed in a MAP chassis, complies to CE, CSA/UL/IEC61010-1, plus LXI Class C requirements.

The Multiple Application Platform (MAP) Variable Optical Attenuator (mVOA-A2) is optimized for the industry-leading JDSU MAP-200 platform. Based on the previous-generation Multiple Application Platform (MAP), the MAP-200 is the first photonic layer lab and manufacturing platform that is LAN Extensions for Instrumentation (LXI)-compliant by conforming to the required physical attributes, Ethernet connectivity, and interchangeable virtual instrument (IVI) drivers. The MAP-200 platform is optimized for density and maximum configurability to meet specific application requirements in the smallest possible foot print.

The mVOA-A2 is a stepper motor and filter based attenuator that takes advantage of the latest available technologies to provide the highest performance optical power level control solution with the lowest optical impairments.

– Ultra low insertion loss to minimize loss budget utilization

– High accuracy and high repeatability to reduce measurement uncertainty

– Fast transition speed to reduce testing time

– Flat spectral response to reduce wavelength dependent uncertainty in multi-wavelength applications (CWDM, DWDM)

– Low backreflection to reduce instabilities due to reflected light

– Optional built-in wavelength calibrated power meter reduces the uncertainty by reducing external connections

– High input power capability for EDFA testing and multi-wavelength applications

The MAP Variable Optical Attenuator is a hot-pluggable cassette designed for use within the Multiple Application Platform (MAP). The MAP is a general purpose high density test and measurement platform for lab or production environments. Up to 16 independently controlled attenuators can be installed in a single MAP chassis.

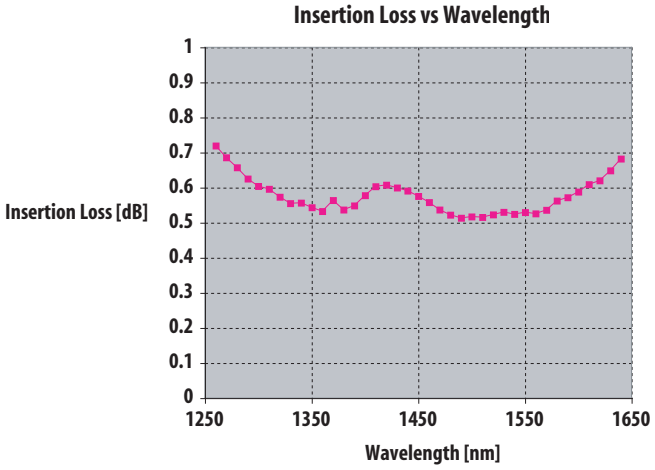


Figure 1: Example of insertion loss of the MAP Variable Optical Attenuator with single-mode fiber

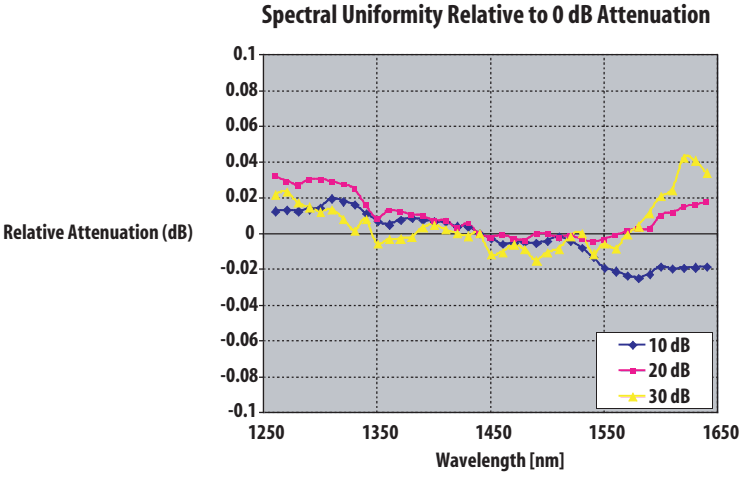


Figure 2: Example of spectral uniformity relative to 0 dB attenuation

Optical Specifications

Parameter	Single-mode		Multimode[10]	
	No power control	With power control	No power control	With power control
Insertion loss at minimum attenuation[1, 2, 3]	≤1.0 dB[4, 5]	≤1.7 dB[5]	≤1.5 dB[4]	≤2.2 dB
Maximum input power (Standard power/High power option)[13]	+23 dBm/+33 dBm		+23 dBm/+27 dBm	
Wavelength range	1260 to 1650 nm		750 to 1350 nm	
Attenuation range[1]	70 dB		65 dB	
Attenuation flatness[8, 9]	±0.04 dB from 0 to 30 dB		N/A	
Attenuation slew rate (nominal)	25 dB/s typical		20 dB/s typical	
Attenuation setting resolution	0.001 dB		0.001 dB	
Attenuation accuracy[1, 3, 12, 14]	±0.1 dB		±0.1 dB	
Attenuation repeatability, 2σ[3, 11, 12, 14]	±0.01 dB		±0.01 dB	
Closed loop output power range (In-line power monitor option)	N/A	–49 to +11 dBm @ 1310/1550 ±15 nm	N/A	–40 to +5 dBm @ 850/1310 ±15 nm
Relative power meter uncertainty[3, 5, 9]	N/A	±0.03 dB	N/A	±0.03 dB
Power setting repeatability[5, 9]	N/A	±0.015 dB	N/A	±0.015 dB
Power setting resolution	N/A	0.001 dBm	N/A	0.001 dBm
Polarization dependent loss (from 0 to 25 dB)[3, 6]	<0.08 dB	<0.15 dB	N/A	N/A
Return loss[7]	>55dB typical APC/45dB typical PC		>30 dB typical (PC connector)	
Shutter isolation	100 dB typical			
Warm up time	30 minutes			
Calibration period	2 years			
Operating temperature	0 to 50°C			
Storage temperature	–30 to 60°C			
Operating humidty (relative, non-condensing)	<90% @ 23°C, <20% @ 50°C			
Dimensions (W x H x D)	4.06 x 13.26 x 37.03 cm (1.6 x 5.22 x 14.58 in)			
Weight	1.1 kg (2.43 lb) single/1.3 kg (2.87 lb) dual			

1. At 1310 ±15 nm and 1550 ±15 nm for SM unit and at 850 ±15 nm and 1300 ±15 nm for MM unit
2. Including one mated pair of connectors
3. At 23 ±5°C
4. Not including tap coupler loss, if installed. Add 0.7 dB for tap coupler option
5. Value shown is for 1550 nm. For 1300/1310 nm the value is typical
6. At 1550 nm ±15 mm only
7. At 1550 nm ±15 nm for SMF, 1300 nm ±15 nm for MMF
8. From 1480 nm to 1640 nm relative to 0 dB attenuation
9. For unpolarized light
10. Multimode specifications are valid for category 4 CPR
11. Constant wavelength, constant temperature, constant state of polarization
12. Measured using low coherence laser source
13. Damage at high optical power due to scratched or poorly cleaned connectors may result. For high power applications, incident light must be applied from "IN" port to "OUT" port. JDSU assumes no responsibility for these user conditions
14. From 0 to 45 dB attenuation

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Ordering Information

For more information on this or other products and their availability, please contact your local JDSU account manager or JDSU directly at 1-800-498-JDSU (5378) in North America and +800-5378-JDSU worldwide or via e-mail at customer.service@jdsu.com.

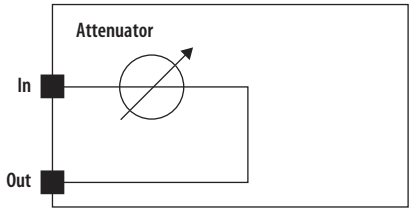
The MAP Variable Optical Attenuators are defined by selecting the required options from the product configurator in the table below. Select one option from each of the three categories (Base, Fiber Type, and Connector Type Options).

Product Code	Description
Base Options (Required, select one)	
MVOA-A2SS0	Single Attenuator, standard power, no built-in options
MVOA-A2SS1	Single Attenuator, standard power, 10/90 splitter for external power monitor
MVOA-A2SSM	Single Attenuator, standard power, with integrated power monitor
MVOA-A2SH0	Single Attenuator, high power, no built-in options
MVOA-A2SH1	Single Attenuator, high power, 10/90 splitter
MVOA-A2SHM	Single Attenuator, high power, with integrated power monitor
MVOA-A2DS0	Dual Attenuator, standard power, no built-in options
MVOA-A2DS1	Dual Attenuator, standard power, 10/90 splitter
MVOA-A2DSM	Dual Attenuator, standard power, with integrated power monitor
MVOA-A2DH0	Dual Attenuator, high power, no built-in options
MVOA-A2DH1	Dual Attenuator, high power, 10/90 splitter
MVOA-A2DHM	Dual Attenuator, high power, with integrated power monitor
Fiber Type Options (Required, select one)	
M100	9/125 fiber type
M101	50/125 fiber type
M102	62.5/125 fiber type
Connector Type Options (Required, select one)	
MFP	FC/PC connector type
MFA	FC/APC connector type
MSC	SC/PC connector type
MSU	SC/APC connector type

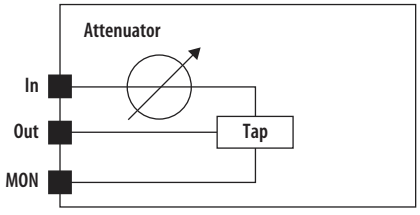
Sample Configuration

The following configuration specifies a single attenuator, standard power, no built-in options, 9/125 fiber type, and FC/PC connector type.

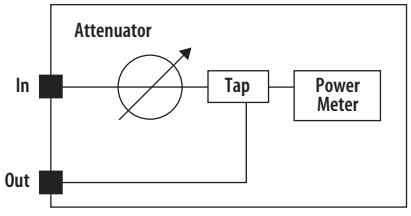
MVOA-A2SS0 with options M100 and MFP



Without Options



With Tap Option



With In-line Power Monitor Option

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