VARIABLE ATTENUATOR

FVA-3100

R&D AND MANUFACTURING – OPTICAL

- Singlemode and multimode
- Monitor output option
- Ultra-low insertion loss
- Programmable–using the front-panel buttons, or the built-in RS-232 or GPIB interfaces

40 Gbit/s Test Solutions

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First-Class Building Block for Assessing Signal Attenuation

High-quality components and meticulous calibration procedures make the FVA-3100 Variable Attenuator the instrument of choice for repeatable and accurate attenuation settings (up to 100 dB). The FVA-3100 meets system and component manufacturers' need for component and system loss simulation, instrument calibration, power meter linearity measurement and spectral tuning. Its ultra-low insertion loss enables you to optimize the loss budget.

The FVA-3100 is configured for singlemode or multimode fibers. Use it as a stand-alone instrument or mounted on a 19-inch rack (optional).

FVA-3100 with monitor port.

APPLICATIONS

- BER testing
- EDFA characterization
- System/component loss simulation
- Accurate power-level monitoring
- Instrument calibration
- Linearity measurement
- Precision variable optical source output
- Spectral tuning
- Optical margin analysis

KEY FEATURES

- **Attenuation modes**

  Choose from three attenuation modes: absolute (including insertion loss), relative (in reference to the 0.00 dB level) or X+B (relative display to any selected reference value).

- **Monitor port**

  The monitor output port enables accurate power-level monitoring at the receiver end of your system.

PROGRAMMABLE AND REMOTELY CONTROLLABLE

Using the front-panel buttons, cycle through a repeatable sequence of up to 100 attenuation steps, with a dwell time of up to 1000 hours per step. The Program mode is ideal for automated bit-error-rate (BER) testing and linearity measurements.

The FVA-3100 can also be programmed remotely through its RS-232 or GPIB interfaces.

EASY TO USE

Access most functions at the touch of a button and manually change attenuation with the FVA-3100's user-defined steps or on-display value editing. The standard GPIB and RS-232 interface and control codes enable remote operation from a PC or test station. Program your own software solutions for complex test procedures and benefit form added computer capabilities. LabVIEW® drivers are available.

SPECIFICATIONS [a]

SINGLEMODE CONFIGURATIONS

Description		SMF without monitor port	SMF with monitor port
Models		**FVA-3100-B**	**FVA-3100-BM**
Fiber type (µm)		9/125	9/125
Wavelength range (nm)		1200 to 1650	1200 to 1650
Max. attenuation (dB)		≥ 70	≥ 70
Insertion loss [b, c] (dB)			
	Typical	1.1	1.4
	Max.	1.8	2.2
Resolution (dB)		0.005	0.005
Linearity [d] (dB)		± 0.1	± 0.1
Repeatability (dB)		± 0.03	± 0.03
Max. PDL [e] (dB)		0.2	0.2
Typ. return loss [b, f] (dB)		> 55	> 55
Max. input power [g] (dBm)		20	20
Shutter isolation (dB)		> 100	> 100
Typ. monitor output (dB)		–	14.5

MULTIMODE CONFIGURATIONS

Description		MMF without monitor port	MMF with monitor port
Models		**FVA-3100-C, D, E**	**FVA-3100-CM, DM**
Fiber type (µm)		50/125, 62.5/125, 100/140	50/125, 62.5/125
Wavelength range (nm)		700 to 1350	700 to 1350
Max. attenuation (dB)		≥ 65	≥ 65
Insertion loss [b, c] (dB)			
	Typical	1.3	2.3
	Max.	2.0	3.2
Resolution (dB)		0.01	0.01
Linearity [d] (dB)		± 0.1	± 0.1
Repeatability (dB)		± 0.03	± 0.03
Typ. return loss [b, f] (dB)		> 25	> 25
Max. input power [g] (dBm)		20	20
Shutter isolation (dB)		> 100	> 100
Typ. monitor output (dB)		–	14.5

Notes

a. At 23 °C ± 5 °C.

b. Measured at 1310 nm and 1550 nm for singlemode units, measured at 850 nm and 1300 nm for multimode units.

c. Measured with FC/UPC connectors for singlemode units and FC/PC for multimode units.

d. Measured at 1310 nm and 1550 nm (up to 60 dB) for singlemode units and 850 nm and 1300 nm (up to 50 dB) for multimode units, non-polarized light.

e. Measured at 1550 nm, attenuation of < 30 dB.

f. The return loss is limited by the return loss of the connectors. The connectors used are FC/APC for singlemode units and FC/PC for multimode units.

g. Typical value. Prolonged exposure may damage the unit.

GENERAL SPECIFICATIONS

Size (H X W X D)		117 mm X 222 mm X 333 mm	(4 5/8 in X 8 3/4 in X 13 1/8 in)
Weight		2.6 kg	(5.8 lb)
Temperature	Operating	0 °C to 40 °C	(32 °F to 122 °F)
	Storage	–40 °C to 70 °C	(–40 °F to 158 °F)
Relative humidity		0 % to 80 % non-condensing	

Instrument Drivers

LabVIEW™ drivers and SCPI commands.

Remote Control

GPIB (IEEE-488.1, IEEE-488.2), RS-232.

Standard Accessories

User guide, Certificate of Compliance, Certificate of Calibration and AC power cord.

ORDERING INFORMATION

FVA-3100-X-XX

Model

FVA-3100-B = 9/125 µm
FVA-3100-C = 50/125 µm
FVA-3100-D = 62.5/125 µm
FVA-3100-E = 100/140 µm
FVA-3100-BM = 9/125 µm with monitor output
FVA-3100-CM = 50/125 µm with monitor output
FVA-3100-DM = 62.5/125 µm with monitor output

Example: FVA-3100-BM-EI-EUI-89

Connector

EI-EUI-28 = UPC/DIN 47256
EI-EUI-76 = UPC/HMS-10/AG
EI-EUI-89 = UPC/FC narrow key
EI-EUI-90 = UPC/ST
EI-EUI-91 = UPC/SC
EI-EUI-95 = UPC/E-2000
EA-EUI-28 = APC/DIN 47256 [a]
EA-EUI-89 = APC/FC narrow key [a]
EA-EUI-91 = APC/SC [a]
EA-EUI-95 = APC/E-2000 [a]

Note

a. Only available for singlemode models.

Rugged Handheld Solutions

OPTICAL
- OTDRs
- OLTSs
- Power meters
- Light sources
- Talk sets

COPPER ACCESS
- ADSL/ADSL2+, SHDSL, VDSL test sets
- VoIP and IPTV test sets
- Ethernet test sets
- POTS test sets

Platform-Based Solutions

OPTICAL FIBER
- OTDRs
- OLTSs
- ORL meters
- Variable attenuators

DWDM TEST SYSTEMS
- OSAs
- PMD analyzers
- Chromatic dispersion analyzer

TRANSPORT AND DATACOM
- Next-generation SONET/SDH and OTN testers
- SONET/DSn (DS0 to OC-192) testers
- SDH/PDH (64 kbit/s to STM-64) testers
- T1/T3, E1 testers
- 10/100 Mbit/s and Gigabit Ethernet testers
- Fibre Channel testers
- 10 Gigabit Ethernet testers

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