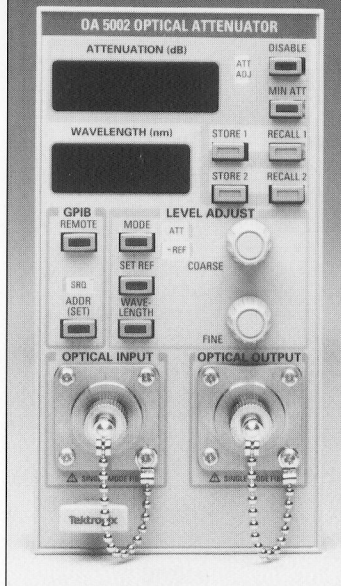
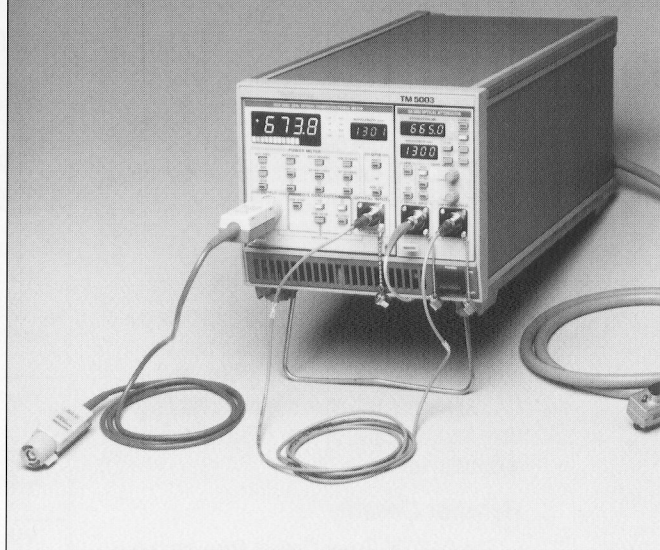


OA5002 OA5012/ OA5022

Programmable Optical Attenuators



OA5002 Programmable Optical Attenuator



OA5022 and OCP5002 in Tektronix TM 5003A Power Module

The OA5002, OA5012, and OA5022 and are programmable optical attenuators for use with Tektronix TM5000 Series Power Modules.

FEATURES

OA5000 Series Optical Attenuators

- 750 nm to 1600 nm calibrated spectral response
- Attenuation Range
≥60 dB Calibrated
≥100 dB Shutter Activated
0.01 dB Minimum Step Size
- Small compact size
- Easy to use controls
- Modular package design
- 6 Units configurable abreast in 19" rack mount
- 4 User-changable fiber optic connector types (FC, ST, SC and DIN 47256)
- IEEE 488.2 Compatible

APPLICATIONS

- Measurement of optical receiver bit error rate as a function of power for standards performance verification (e.g. FDDI and SDH/SONET).
- Development of electro-optic systems (e.g., optical communication links, LANs, etc.)
- Evaluation of fiber optic components, such as receivers, for linearity and dynamic range. 0 to 60 dB attenuation permits the testing of these devices over the full range of their operating conditions.
- Calibration of OTDR Fiber Attenuation Measurements
- Calibration of optical power meter linearity in relative dB mode
- Two user stored settings facilitate evaluation of devices for minimum and maximum power settings

The Vital Link in Fiber Optic T&M Systems

Fiber-optic and laser technologies are transforming the telecommunications and electronics industries at an accelerating rate. As a result, the need for accurate and reliable optical waveform measurement and analysis solutions – solutions that are versatile and easy to use – has never been greater.

Now, Tektronix Programmable Optical Attenuators provide the vital link in the optical systems for analysis of system performance.

The OA5002 is equipped with single mode input and output fibers, the OA5012 is equipped with 50 micron multimode input and output fibers and the OA5022 is equipped with 62.5 micron input and output fibers.

The OA5002/OA5012/OA5022 have continuously variable attenuation over the range of 0 to 60 dB with shutter for above 100 dB attenuation.

Tek's OA Series of attenuators are IEEE 488.2 programmable. They are also very easy to operate from the front panel.

Tektronix
Test and Measurement

TYPICAL APPLICATIONS

With Tektronix Optical Attenuators combined with Tektronix CSA 907 Bit Error Rate Tester and the CSA 803 or CSA 404 Communication Signal Analyzers, testing of fiber optic communications and control systems, are easy and repeatable.

Receiver Bit Error Performance

When evaluating receiver bit error rate performance, the bit error rate should be measured as a function of optical power. The OA5000 Series will attenuate the optical signal from the front panel or over GPIB control for automatic testing.

Receiver Linearity

The OA5000 Series Optical Attenuators provide the optical attenuation to determine the linearity, Overdrive recovery and other characteristics of optical receivers as a function of optical power input.

OTDR & Power Meter Calibration

For calibration of both Optical Time Domain Reflectometry instruments and Optical Power Meters, the range of optical power input will have to be varied with calibrated accuracy through the range of the specific device specifications. For attenuation levels from 0 dB to 60 dB in steps as low as 0.01 dB, the OA5000 Series Optical Attenuator provides the range necessary for these applications.

Total System Attenuation

The total attenuation of any attenuator is the sum of the attenuation caused by the connections (the insertion loss) and the attenuation caused by the active element. To set the attenuation level at the total system attenuation, the OA5000 Series Optical Attenuators have the reference level with the set reference function. Simply set the reference level to insertion loss of your system and change the mode to - REF and the ATTENUATION (dB) display will now read the total attenuation of the system.

SPECIFICATIONS

Characteristic	Performance Requirements
OA50x2	
Wavelength Range	750 to 1600 nm
Input OA5002 OA5012 OA5022	Single mode fiber 50 micron Multimode 62.5 micron Multimode
Insertion Loss	≤2.0 dB(1) ≤4 dB(2)
Return Loss	≥ -45 dB(3) ≥ -25 dB(4)
Attenuation Range	≥60 dB(5) ≥50 dB(6)
Disable	≥100 dB
Minimum Step Size	0.01 dB
Scan Time	0.5 Sec. for 10 dB Δ(7)
Accuracy	±0.1 dB
Resetability	±0.04 dB
Linearity	±0.05 dB
Mode Dependent Loss	±0.05 dB

- (1) 1100-1600 nm
- (2) 700-1100 nm(OA5012/OA5022)
- (3) OA5002(Using FC/PC Fiber Input)
- (4) OA5012/OA5022
- (5) 750-1350 nm
- (6) 1350-1600 nm
- (7) ≤5 Sec. Full Scale

ORDERING INFORMATION

OA5002 Optical Attenuator.

Includes: Single mode input and output; Universal Optical input and output connector; and instruction manual (070-7612-00).

OA5012 Optical Attenuator.

Includes: 50 micron multimode input and output; Universal Optical input and output connector; and instruction manual (070-7612-00).

OA5022 Optical Attenuator.

Includes: 62.5 micron multimode input and output; Universal Optical input and output connector; and instruction manual (070-7612-00).

NOTE: OA5000 Series Optical Attenuators must be used with a Tektronix TM 5000 Series Power Module Mainframe or the right-hand slot of a Tektronix OCP 5502.

ENVIRONMENTAL CHARACTERISTICS

Operating temperature — 0°C to 50°C (32°F to 131°F).

Nonoperating temperature — -40°C to 75°C (-40°F to 167°F).

Humidity — Five cycles (120 hours) at 95% to 97% relative humidity at 30°C to 60°C.

Transportation — Qualifies under National Safe Transit Association's Pre-shipment Test; 1A-B-1.

Electrostatic immunity — 20 kV, maximum

PHYSICAL CHARACTERISTICS

Net weight (includes accessories) — 70 g (2.5 oz).

OPTIONAL ACCESSORIES

Optical cables — 2 m, 8/125 micron Single mode

- ☐ **FC/PC to Diamond 2.5** — 174-1497-00
- ☐ **FC/PC to Diamond 3.5** — 174-1385-00
- ☐ **FC/PC to ST** — 174-1386-00
- ☐ **FC/PC to FC/PC** — 174-1387-00
- ☐ **FC/PC to Biconic** — 174-1388-00

Optical cables — 2 m, 62.5/125 micron Multimode

- ☐ **FC/PC to Biconic** — 174-2323-00
- ☐ **FC/PC to SMA906** — 174-2324-00
- ☐ **FC/PC to FC/PC** — 174-2322-00

Call Now:
1-800-426-2200
(U.S.A. only)

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For additional literature, or the address and phone number of the Tektronix Sales Office nearest you, contact:
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(503) 627-7111

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Test and Measurement