



General Description

The PDR Variable Fiber Optic Attenuator (VOA) is a precision passive component designed to continuously control and adjust optical signal power levels in fiber optic communication systems. Available in both single-mode and multi-mode variants, the VOA offers a wide attenuation range of up to 30 dB with high accuracy and exceptional repeatability. Its robust mechanical design ensures stable, low-insertion-loss performance across an extended wavelength range of 1260–1650 nm, making it suitable for telecom networks, CATV systems, data centers, and laboratory test environments. Multiple connector interface options — SC, LC, FC, and ST — allow seamless integration into existing fiber infrastructure.

Key Features

- Wide attenuation range of 0–30 dB with precise, continuous adjustment capability
- High attenuation accuracy of ± 0.5 dB for reliable signal level management
- Low insertion loss of ≤ 1.0 dB to minimise signal degradation in the optical path
- High return loss of ≥ 50 dB (SM) for excellent back-reflection suppression
- Available in SC, LC, FC, and ST connector interfaces for universal compatibility
- Supports both single-mode and multi-mode fiber types
- Broad wavelength coverage from 1260 to 1650 nm, encompassing all standard telecom bands
- Low polarisation dependent loss (PDL) of ≤ 0.2 dB for stable performance
- High repeatability of $\leq \pm 0.2$ dB across ≥ 1000 adjustment cycles
- Compact and robust construction suitable for laboratory and field deployment

PDR VIDEOTRONICS (INDIA) PRIVATE LIMITED

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Technical Specifications

Parameter	Specification
Attenuation Range	0 – 30 dB (Typical)
Attenuation Accuracy	± 0.5 dB
Resolution	0.1 dB (Typical)
Insertion Loss	≤ 1.0 dB
Return Loss	≥ 50 dB (SM)
Wavelength Range	1260 – 1650 nm
Connector Type	SC / LC / FC / ST
Fiber Type	Single-mode / Multi-mode
Polarisation Dependent Loss (PDL)	≤ 0.2 dB
Repeatability	≤ ± 0.2 dB
Operating Temperature	-20°C to +70°C
Storage Temperature	-40°C to +85°C
Durability	≥ 1000 adjustment cycles

Applications

- Fiber-to-the-Home (FTTH) and Fiber-to-the-Building (FTTB) network power balancing
- Telecommunications network testing, commissioning, and maintenance
- Cable TV (CATV) and broadband infrastructure signal level optimisation
- Data centre interconnects and optical link budget management
- Military and industrial fiber optic communication systems
- Laboratory research, optical component testing, and system characterisation

Ordering Information

Available Models

Part Number	Connector	Fiber Type	Attn. Range	Description
VOA-SC-SM-30	SC	Single-mode	0 – 30 dB	SC Variable Attenuator SM
VOA-LC-SM-30	LC	Single-mode	0 – 30 dB	LC Variable Attenuator SM
VOA-FC-MM-20	FC	Multi-mode	0 – 20 dB	FC Variable Attenuator MM
VOA-ST-SM-30	ST	Single-mode	0 – 30 dB	ST Variable Attenuator SM

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