

RF and Fiber Optic Attenuators

Fixed values and adjustable attenuation

Select attenuation by the signal path, operating band and required level reduction. ComponexX offers fixed RF and optical formats for network applications, plus variable optical options for commissioning and test work.

75 Ω fixed RF

Fixed optical



Variable optical adapter

Family	Attenuation choices	Primary selection requirement
75 Ω fixed RF	3, 6, 8, 10, 12, 16 or 20 dB	F male to F female; 5–1218 MHz.
Fixed optical	1–25 dB selectable	Connector, polish, fiber mode and wavelength.
Variable optical adapter	1–30 dB	Single-mode reference; 1260–1620 nm.
Collimator variable optical	Up to 60 dB by variant	Specified wavelength band, fiber and lead configuration.

A component selected for the signal path

An attenuator reduces signal level. Choose the value against the receiver or test requirement and keep frequency or wavelength, connector geometry and the allowed input power in the specification.

75 Ω FIXED RF

CATV fixed attenuators

Compact F male-to-female components for level adjustment within the specified broadband RF band.



Fixed F-interface attenuator configurations

Parameter	Specification
Frequency range	5–1218 MHz
Impedance and interface	75 Ω ; F male to F female
Nominal attenuation	3 / 6 / 8 / 10 / 12 / 16 / 20 dB
Return loss	≥ 18 dB
Flatness	± 0.85 dB
Housing size	28 × 11 mm
Operating temperature	–20 to +60 °C
Storage temperature	–40 to +70 °C

Use the rated band

Suitable applications include CATV signal-level adjustment and broadband RF test paths operating within 5–1218 MHz. Verify the complete system band before selecting the component.

Attenuation tolerance varies with frequency and nominal value. Request the applicable electrical table and acceptance limits for the selected configuration. No full-band satellite or MoCA compatibility is asserted for this range.

FIXED OPTICAL ATTENUATION

Select the connector and loss value

Plug, flange and inline formats provide a defined loss element when optical power needs to be reduced.



Representative fixed optical plug formats

Parameter	Single-mode reference	Multimode reference
Operating wavelength	1310 / 1550 nm; stated band 1200–1600 nm	850 nm
Attenuation selection	1–25 dB	Confirm selected value
Return loss	UPC ≥ 50 dB; APC ≥ 60 dB; PC ≥ 35 dB	PC ≥ 35 dB
Attenuation tolerance	1–5 dB: ± 0.5 dB; 6–25 dB: $\pm 10\%$	Set with configuration
Maximum optical input	200 mW	200 mW
Operating temperature	–40 to +85 °C	–40 to +85 °C

Choose the connection format

Available directions include SC, LC, FC, ST, MU, E2000 and selected hybrids, with male-to-female plugs, female-to-female flanges, inline and loopback formats. Interface and polish availability depend on the variant.

Match the actual network wavelengths. The 1200–1600 nm reference band alone does not establish support for every PON wavelength plan. Optical return loss is a separate parameter from the selected attenuation value.

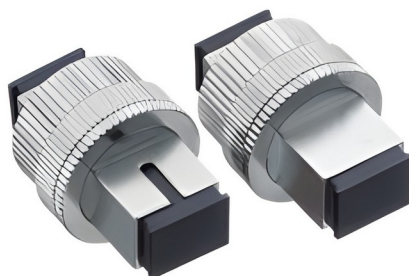
VARIABLE OPTICAL ADAPTERS

Adjust attenuation at the connection

A compact adjustable body for compatible single-mode commissioning, maintenance and bench setups.



FC variable adapter examples



SC variable adapter examples



Selected variable interface options

Parameter	Single-mode reference specification
Operating wavelength	1260–1620 nm
Attenuation range	1–30 dB
Attenuation accuracy	±0.8 dB
Polarization-dependent loss	≤0.2 dB
Minimum insertion loss	<2.5 dB
Maximum optical input	200 mW
Sleeve	Zirconia ceramic
Operating temperature	–40 to +80 °C

Match the body to the test connection

LC, FC, SC and ST interfaces are included in the reference range. SMA and hybrid body options require confirmation of the selected configuration and its applicable optical limits.

Minimum insertion loss is not zero loss. Include the component's baseline loss in the measurement setup and confirm the operating wavelength and input power.

COLLIMATOR VARIABLE OPTICAL ATTENUATORS

A wider adjustment range for test work

Connectorized or custom fiber leads support defined optical test and qualification arrangements.



SC/APC lead example



SC/UPC lead example

Parameter	Single-band SM	Dual-band SM	Multimode
Wavelength options	1310 $\pm$ 40 nm or 1550 $\pm$ 40 nm	1310 $\pm$ 40 nm and 1550 $\pm$ 40 nm	850 $\pm$ 40 nm and 1310 $\pm$ 40 nm
Attenuation range	0.6–60 dB	0.8–60 dB	0.8–40 dB
Initial loss	$\leq$ 0.6 dB	$\leq$ 0.8 dB	$\leq$ 0.8 dB
Adjustment precision	0.02 dB	0.02 dB	0.02 dB
Return loss	$\geq$ 50 dB	$\geq$ 50 dB	$\geq$ 25 dB
Fiber type	SMF-28e	SMF-28e	50/125 or 62.5/125 μ m

Common reference values: PDL $\leq$ 0.15 dB; operating/storage temperature -40 to $+85$ °C; cable length 1–2 m. Adjustment precision does not establish absolute attenuation accuracy.

Specify the attenuation requirement

Send the signal band, interface and polish, fixed value or adjustment range, tolerance, quantity and intended environment.

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