



# ATTENUATORS & COUPLERS

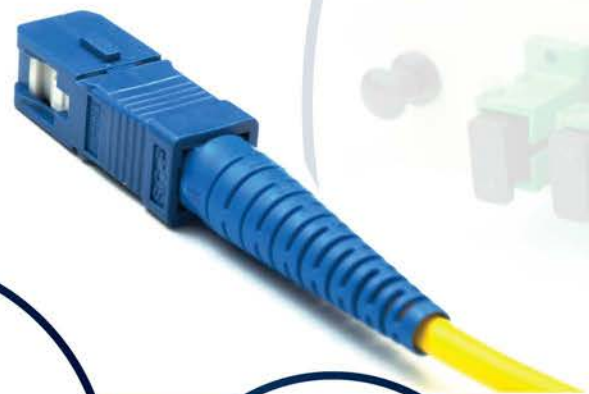
Amphenol Fiber Optic Products' couplers are manufactured using a precision computer-controlled manufacturing process capable of producing large volumes and tight unit-to-unit uniformity. An optical coupler is a passive device that precisely distributes light signals between two fibers over a broadband operating window. Each device offers bi-directional performance allowing for either power splitting or signal combining.

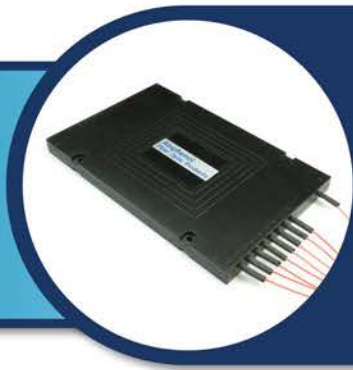
The optical coupler has proven to be a beneficial component of any optical network design. Amphenol's low loss, cost-effective devices provide a means for network design flexibility, system monitoring or increasing capacity. The excellent uniformity from unit to unit allows for ease in network design, saving our customers time and money.

Amphenol Fiber Optic Products' attenuator product line consists of fixed and variable optical attenuators. An attenuator, by definition, is a device which precisely reduc-

es an optical signal from point-to-point. The loss can be achieved through various technologies such as absorption, scattering, interference (thin film) filter, or air-gap.

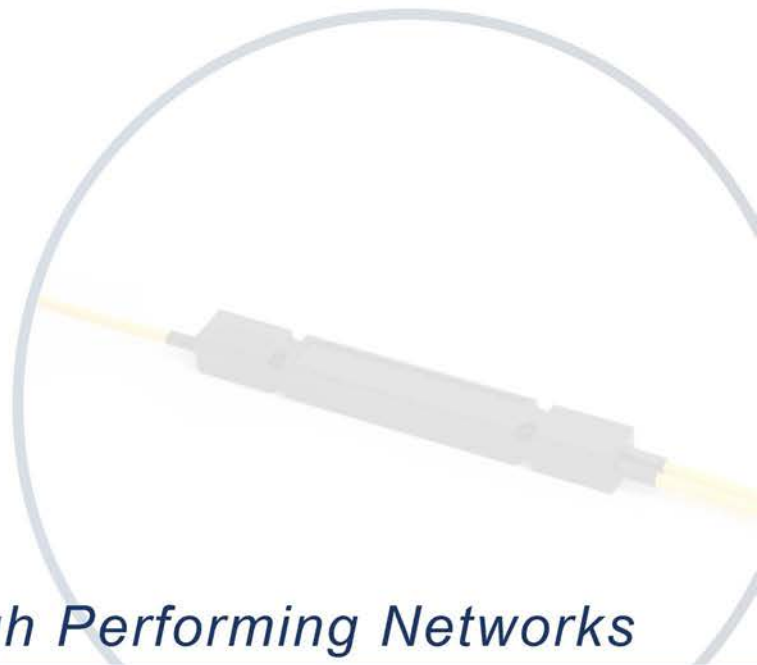
The most common use of the optical attenuator, whether fixed or variable, is in optical networks where erbium doped amplifiers are being used. Attenuators are used to adjust optical signal levels thereby increasing network flexibility and providing management of optical power.





# PRODUCT TYPE

Plug Attenuators .....	123
Mode Conditioning Plug .....	125
Couplers .....	127



*Signal Distribution for High Performing Networks*

## Plug Attenuators

Amphenol's plug-style attenuator is compact in size, offers attenuation values from 0-20dB, and is available in LC, SC, and FC industry standard connector styles, with either flat or angle polish.

Amphenol's attenuators use light absorption technology. This eliminates the scattering of light into the fiber cladding that could be reflected back from the connector interface.

With the short distance between connector end faces, the reflected light creates interferences that in turn create the desired insertion loss variation as the wavelength changes.



### Features and Benefits

Available in LC, FC, and SC configurations

Wavelength independent for multiple wavelength system compatibility

Compact plug style design easily fits into existing patch panels

Available in 1dB through 20dB attenuation values

Polarization insensitive

Compact plug style design easily fits into existing patch panels

### Specifications

Attenuation values:

$\leq 5\text{dB} \pm 0.5\text{dB}$

$> 6\text{dB} \pm 10\%$  of nominal value

Return Loss:

$\leq -55\text{dB}$  Ultra Polish (UPC)

$\leq -65\text{dB}$  S/M Angle Polish (APC)

Operating Temperature:

-40 to +80°C

Operating Wavelengths: 1310/1550nm (center wavelength)

Operating Band Pass:

1260nm to 1360nm and 1430nm to 1580nm

PDL:

$\leq 0.2\text{dB}$

$\leq 5\text{dB} \pm 0.5\text{dB}$

### Applications

Data Centers

IT/Datacom

### Industry Compliance

RoHS compliant

Meets GR-910 specifications

Connectors comply to applicable TIA/EIA and IEC intermateability standards

# Amphenol

**FIBER OPTIC PRODUCTS**



# Mode Conditioning Plug

Amphenol's MC plug is designed for use in Gigabit Ethernet applications and is compliant with the IEEE 802.3Z standards. The use of mode conditioning plugs significantly increases the performance and applicable distances of laser diodes over multimode fiber networks.

The MC pluggable module eliminates the need for placing a mode conditioner into a cable assembly. The MC plug can be used with any standard multimode cable assembly greater than 3 meters. This versatility allows the user to quickly configure and reconfigure systems without the limitations of fixed length mode conditioning patch cords.



## Features and Benefits

- Available in LC, FC, and SC configurations
- Male to Female Pluggable
- Available in either direction (i.e.. Male either S/M or M/M)
- Reduced size mounts directly to panel
- Universal plug package, commonly used for plug style attenuators

## Specifications

- Insertion Loss: <.5dB
- Return Loss: >25dB
- Operating Wavelength:  
1300nm Nominal
- Operating Bandpass:  
1260nm to 1360nm
- Operating Temperature:  
-40 to +75°C
- Storage Temperature: -40 to +75°C

## Applications

- IT/Datacom
- Data Centers

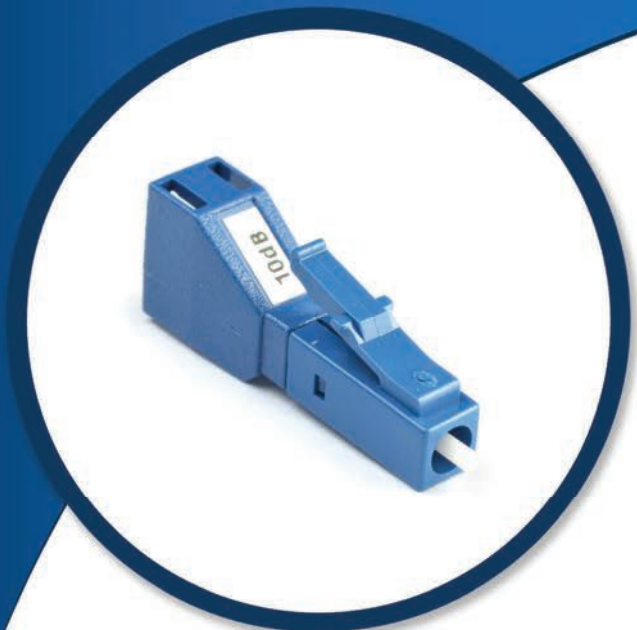
## Industry Compliance

RoHS compliant

## Ordering Information

\*Please call customer service for additional configurations

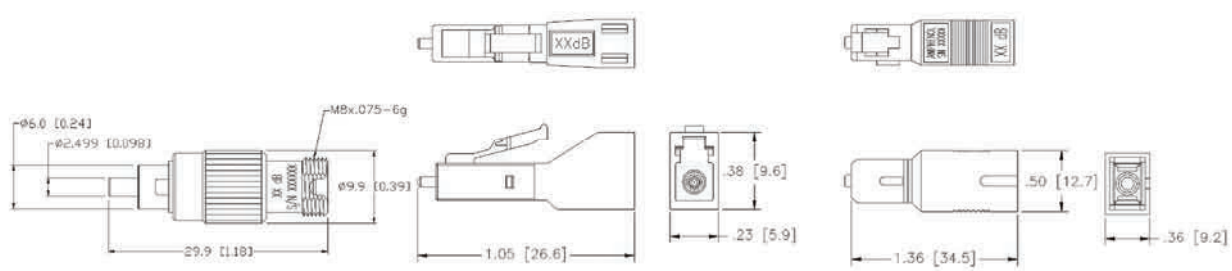
Part Number	Description
956-999-MCP50M1	MC PLUG, LC S/M FEMALE, 50µm MALE
954-999-MCP50M	MC PLUG, SC, 50µm MALE, S/M FEMALE



### Ordering Information

Part Number	Description
944-130-51xx	FC/UPC PLUG ATTENUATOR, XX= DB VALUE
956-130-51xx	LC/UPC PLUG ATTENUATOR, XX= DB VALUE
954-130-51xx	SC/UPC PLUG ATTENUATOR, XX= DB VALUE

\*Please call customer service for additional configurations



# Couplers

An optical coupler is a passive device that precisely distributes light signals between two fibers over a broadband operating window.

Each device offers a bi-directional performance allowing for either power splitting or signal combining.

Amphenol's couplers are made using a precision manufacturing process capable of producing large volumes and tight unit to unit uniformity. The optical coupler has proven to be a beneficial component of any optical network design.

Amphenol's low loss, cost effective devices provide a means for network design flexibility, system monitoring or increasing capacity.

Amphenol couplers are offered in a variety of packaging options and can be terminated with any industry standard connector.



## Features and Benefits

Polarization insensitive

Multiple packaging options: Miniature or Ruggedized

Various Coupling ratios available

## Specifications

Coupling Ratio:  
1/99 to 50/50

Directivity:  
≥ 50dB (1x2)  
≥ 60dB (2x2)

Reflectance:  
≤ -55dB

Operating Bandpass:  
+/- 40nm

Operating Temperature:  
-40° to 85°C

Storage Temperature:  
-55° to + 85°C

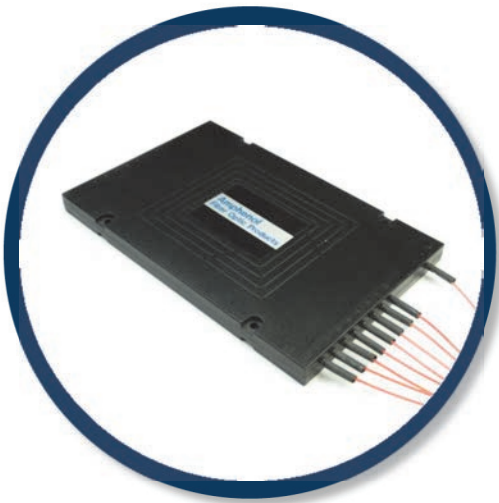
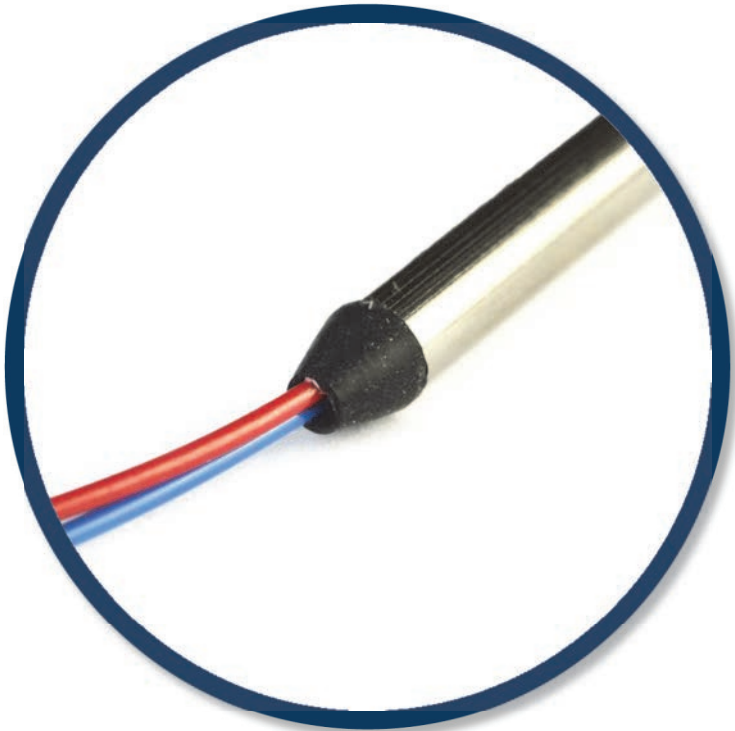
## Applications

CATV

IT/Datacom

Testing Equipment

## Industry Compliance



### Ordering Information

Part Number	Description
945-23033-11000	COUPLER, 1X2, 50/50, 1310NM, SC/UPC, 1M
945-70033-11100	COUPLER, 1X2, 50/50, 1310/1550, SC/UPC, 1M

\*Please call customer service for additional configurations