Variable Fiber Optic Attenuators

The ATT100 series variable attenuators are identical to the old FOTEC A400 series variable attenuators. The ATT100 series are ideal for simulating cable loss for lab testing of link power margin or reducing power in links where receivers are being overloaded. The ATT100 variable attenuators are of the gap-loss type. The loss is induced by pulling the connector endfaces apart. Since the light exits in an expanding cone, the receiving fiber will capture less light as the gap gets larger.

Air gap attenuators are ideal for use with any LED systems and many laser systems. Some laser systems, especially high speed digital links (over 1 GB/s) or analog CATV systems may not operate well with these attenuators due to back reflections. If you are using these attenuators in those types of systems, you should use the ATT120 with a FC/APC connector, which have very low return loss even when unmated.

The ATT100 variable attenuators mate to cables with the connector types listed. If you need to use them with other connector types, use hybrid cables, with one connector matching the attenuator and the other connector mating to the network connector. The fiber type used should also match the network fiber type, with one exception: if in a singlemode network your receiver uses a multimode "bucket" fiber, you can use a matching multimode fiber on the receiver side of the attenuator.

Model No. Connector Fiber Type dB Loss Range Application

ATT120 FC/PC MM OR SM ~1 to 30 dB Cable to Cable

ATT130 SC MM OR SM ~1 to 30 dB Cable to Cable

ATT110 ST MM OR SM ~1 to 30 dB Cable to Cable

Attaching Interface Cables

For use, the attenuator is attached between two mating cables, replacing the usual splice bushing. Refer to the instructions below appropriate to the attenuator you are using.

ATT110 (ST) and ATT130 (SC)

Attach the input and output cables directly to the female receptacles on the attenuator as you would normally with a splice bushing.

ATT120 (FC)

Unscrew the attenuator fully and remove the outer half of the attenuator body.

Remove the connector interface adapter from the inner part of the attenuator using the tool supplied. On the ATT120, the adapter unscrews.

Thread the cable through the attenuator body.

Attach the interface adapter to the connector on the cable.

Reattach the adapter into the attenuator body using the tool supplied. On ATT120, insure the adapter is tightened snugly.

Screw the outside of the attenuator body back on.

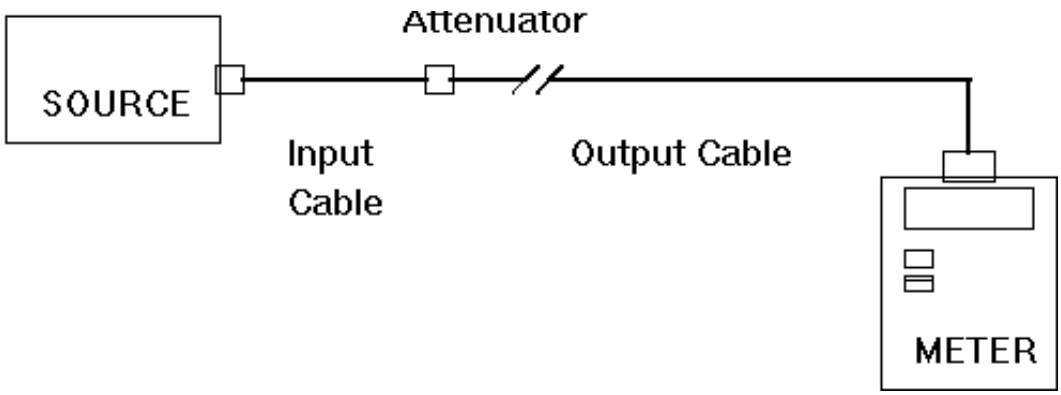
Attach the input cable directly to the female receptacle on the other end of the attenuator.

Setting the Attenuator Loss

The ATT100 variable attenuators can be set to any loss value within the operating range desired using a fiber optic source and power meter, such as found in the Metrotek Test Kits. You can set the loss either by measuring the actual loss, preferred for testing system margin in the lab, or by setting the receiver power level, when using them in an operating network.

Calibrating Actual Loss

If you wish to calibrate the actual loss of the attenuator, you need to measure the optical power going into the attenuator and the optical power coming out, similar to testing the loss of a jumper cable.



1. Attach input cable to fiber optic source.

2. Connect meter to input cable, measure power level in dB

3. Attach attenuator with output cable to input cable

4. Attach meter to end of output cable, measure power in dB after attenuation

5. Calculate loss in dB by subtracting two values.

Setting Receiver Power

1. Attach attenuator to receiver end of the network cable just before the receiver.
2. Connect power meter to network cable and measure power with network source on.
3. Adjust attenuator to proper receiver power level and lock with screw or locking ring.

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