

Frequently Asked Questions about Variable & Manual Step Attenuators....

What are the applications for Weinschel's variable/manual step attenuators?

Continuously Variable Attenuators are used in applications where the need exists for controlling signal levels continuously without interrupting the circuit. Most Weinschel models are in linear scales, and have low frequency sensitivity with broad frequency coverage, resulting from the use of proven Aeroflex / Weinschel resistive films. The resistive elements located in these Variable Attenuators provide long-term stability over temperature and humidity.



Manual Step Attenuators are primarily used in areas demanding broadband accuracy with low SWR and accurate repeatability over large attenuation ranges. The Weinschel Step Attenuators utilize the excellent performance characteristics of the Weinschel fixed coaxial attenuators. The Weinschel step attenuators are widely used in many types of ATE and OEM systems operating throughout the world.

Aeroflex / Weinschel offers a selection of different attenuation ranges and frequency ranges to select from. These range from 0 to 10 dB in 1 dB steps up to 0 to 100 dB in 10 dB steps and frequency ranges from dc to 40 GHz. High volume fabrication techniques, including injection molding, stamping, broaching and thick film printing ensure a cost effective and uniform product.

What is the difference between insertion loss and incremental attenuation?

Step and variable attenuators have insertion loss and also incremental attenuation. Insertion loss is the loss through the attenuator when all cells are switched to zero dB. It is the residual loss of the device itself. Insertion loss usually increases with frequency reaching several dB at the higher frequencies and generally has very flat frequency response. Incremental attenuation is the attenuation values of the attenuators cells relative to the insertion loss. Since insertion loss is always present, the performance of a step or variable attenuator is always given as incremental attenuation relative to insertion loss. Insertion loss is considered part of the fixed performance of the system path in which the step or variable attenuator is located.

What types of variable attenuators does Weinschel offer?

There are several designs of continuously variable attenuator available in the marketplace: Piston, card, tee, and resistive center conductor. Weinschel offers only the Variable Card Attenuator Design.



Weinschel's 940 series uses a card resistor on a disk with a movable coaxial contact (shown below) similar in nature to a potentiometer and provides an incremental range of 114 dB incremental range at 2 GHz and 60 dB at 4 GHz. Because the shunt film is connected to ground permanently, in order to achieve the extended attenuation range, the minimum loss of this type attenuator is higher (4 to 6 dB).

