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Note: Repairs and packages should be shipped to Suite 202



Models 4420 and 4520

Passive Equalizers - 600 Ohm Impedance

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Models 4420 and 4520 Installation Notes

DESCRIPTION:

Models 4420 and 4520 from White Instruments, Inc. are Single-Tuned, Passive equalizers designed to operate within a 600/600 ohm impedance link. This impedance link is the only difference between them and the Models 4220 and 4320, which are designed to operate within a 0/10k ohm impedance link.

INSTALLATION:

The equalizers may be installed in any EIA Standard, 19" wide rack space. The Model 4420 requires 1.75" vertical space and the Model 4520 requires 3.5". Because these equalizers are filled with inductors, which may pick up hum, they should be located away from large power supplies as those found in power amplifiers.

OPERATION MODES:

Two operation modes exist: Normal and Crossover (Xover) Option. Normal Operation is required when no plug-in accessory is needed or when any plug-in accessory other than a crossover network is used. To operate in the Normal Mode make certain that the Accessory Octal Socket is jumpered between the pins marked "A", or any compatible plug-in accessory (with the exception of a crossover network) is mounted in the socket. To operate in the Crossover (Xover) Mode mount a compatible crossover network in the accessory socket. SAVE the jumper if you remove it as it is an uncommon wire gauge.

CONNECTIONS:

Either model features **ONE** input and **TWO** outputs which are single-ended and located on the rear panel mounted, six-terminal, barrier strip connector. The terminals are labeled as follows...

EITHER MODE

COM = Signal -, Common or Low Leg – **OUTPUT** and **INPUT**
= Chassis (NOT connected co Signal Common)
IN = Signal +, Hot or High Leg – **INPUT**

NORMAL MODE

NC = No Connection
OUT = Signal +, Hot or High Leg – **OUTPUT**

CROSSOVER (XOVER) MODE

HF = Signal +, Hot or High Leg – **HIGH FREQUENCY OUTPUT (High-Pass)**
LF = Signal +, Hot or High Leg – **LOW FREQUENCY OUTPUT (Low-Pass)**

The mating connectors for the equalizer's barrier strip terminals should be **INSULATED #6** spade lugs. If the connector is not insulated it is possible that it can short to the equalizer's chassis.

IMPEDANCE MATCHING:

In order for the equalizer to function properly it must be installed within a specified impedance link. The impedance of the source driving the equalizer must be 600 ohms and the impedance of the load must be 600 ohms. If the Crossover Option is used, EACH output must drive a 600 ohm load.

1. Measure the impedance of the source driving the equalizer. If it is less than 600 ohms install a resistor (1/2 Watt) in series with the "IN" terminal. The impedance of the source plus the value of the resistor should equal 600 ohms $\pm 10\%$.
2. Measure the impedance of the load terminating the equalizer. If it is greater than 600 ohms it is necessary to calculate the value for a shunt resistor (1/2 Watt) which will be installed between the Output and Common terminal(s). The following equation is used,

$$\mathbf{R2} = \frac{\mathbf{600 \times R1}}{\mathbf{R1 - 600}} \quad \text{Where...} \begin{array}{l} \mathbf{R2} = \text{Value of the Shunt Resistor in Ohms} \\ \mathbf{R1} = \text{Impedance of the Load in Ohms} \\ \mathbf{600} = \text{Desired Termination Resistance in Ohms} \end{array}$$

If the equalizer is to be installed WITHOUT an accessory crossover network or filter, the impedance link, 1200 ohms, can equal the sum of the source and load impedance.

$$0 + 1200 = 1200 \quad \text{or} \quad 200 + 1000 = 1200 \quad \text{or} \quad 600 + 600 = 1200 \text{ etc.}$$

Plug-In Accessories for Models 4420 and 4520 Passive Equalizers

<u>PART NO.</u>	<u>DESCRIPTION</u>
4471-f	High-Pass Filter, 18dB/Octave, for Models 4420, 4520 or stand alone, 600/600 ohms, Octal Plug-in. Specify frequency (f) above 20 Hz.
4472-f	Low-Pass Filter, 18dB/Octave, for Models 4420, 4520 or stand alone, 600/600 ohms, Octal Plug-in. Specify frequency (f) above 100 Hz.
4473-f1-f2	Band Limit Filter, 18dB/Octave, for Models 4420, 4520 or stand alone, 600/600 ohms, Octal Plug-in. Specify frequency (f1) greater than 20 Hz and (f2) at least one octave higher.
4474-f	Crossover Network/High-Pass Filter, 12db/Octave, for Models 4420, 4520 or stand alone, 600/600 ohms, Octal Plug-in. 18dB/Octave High-Pass Filter set at 20 Hz. Specify crossover frequency (f) greater than 200 Hz.
4475-f	Same as 4474-f, above, except Crossover is 18db/Octave. 4478-f Crossover Network, 12dB/Octave, for Models 4420, 4520 or stand alone, 600/600 ohms, Octal Plug-in. Specify frequency (f) greater than 100 Hz.
4479-f	Same as 4478-f, above, except Crossover is 18db/Octave.
4480-f	Same as 4478-f, above, except optimized for Constant Directivity Horns.
4480-f	Same as 4480-f, above, except Crossover is 18db/Octave.