VISHAY PRECISION GROUP

CASE STUDY

Product Group: Vishay Foil Resistors

Upgrading High-Pass Alignment Filter for Audio Systems

Author: Arup Goswami, Director / Principal Design Engineer

Verity Audio & Engineering, based in India, upgraded its B&W 800 Series Variable High-Pass Alignment Filter using the VSH series of foil resistors for superior noise reduction.

Industry/ Application Area: High-End Audio

Product Used: Bulk Metal Foil® VSH resistors

Description of Case Study:

Upgrading the Bowers & Wilkins 800-Series Variable High-Pass Alignment Filter

The Challenge

"To obtain the most transparent, uncolored sonic presentation with the lowest possible noise".

The stock filter circuit used 1% metal film resistors (31 pieces) of 1/8 Watt standard quality that failed to offer the sonic mandated from the otherwise practically faultless speaker system. Hence, although the filter performed its intended Second Order of Quality Factor = 2 task, which was to convert a 4th-Order Bessel alignment to a 6th-Order Butterworth as per Late John Bowers's design goals, there were aberrations in the overall frequency response that led to unsatisfactory listening realism, marring the otherwise excellent all-round performance from the Matrix 800 series loudspeakers.

The Solution

Substitution of VSH series Bulk Metal® foil resistors in the electronics improved the circuit's sonic capabilities dramatically, allowing the true quality of the loudspeakers to fully come alive.

The User Explains

As we set out to upgrade our B&W 800 Series variable High-Pass alignment filter, we looked at every possibility to obtain the most transparent, uncolored sonic behavior with the lowest possible noise figures. We wanted to replace and substitute exact values of every resistor in the circuit with Bulk Metal® foil resistors and observe the improvements this would bring about in the device. We were very optimistic based on our past experiences with Vishay Foil Resistors.

I have tried the VTA series, S series, and VSH series and personally prefer the results I obtain from the VSH types. When we use a certain resistor in a circuit, we allow approximately 100 to 200 hours burn-in and settling time. Thereafter, we carry out exhaustive listening tests on our reference equipment. Not only do the VSH types provide the best sound, they are also compact devices, with through-hole usability.

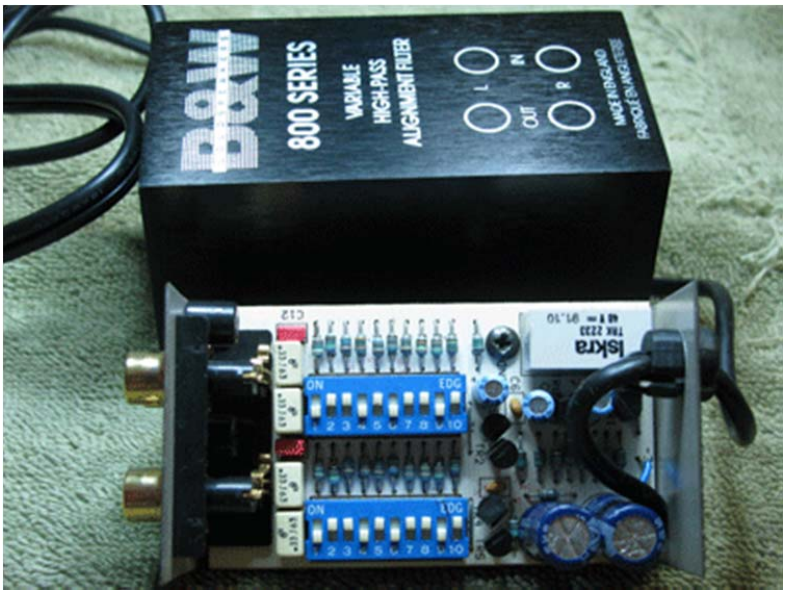
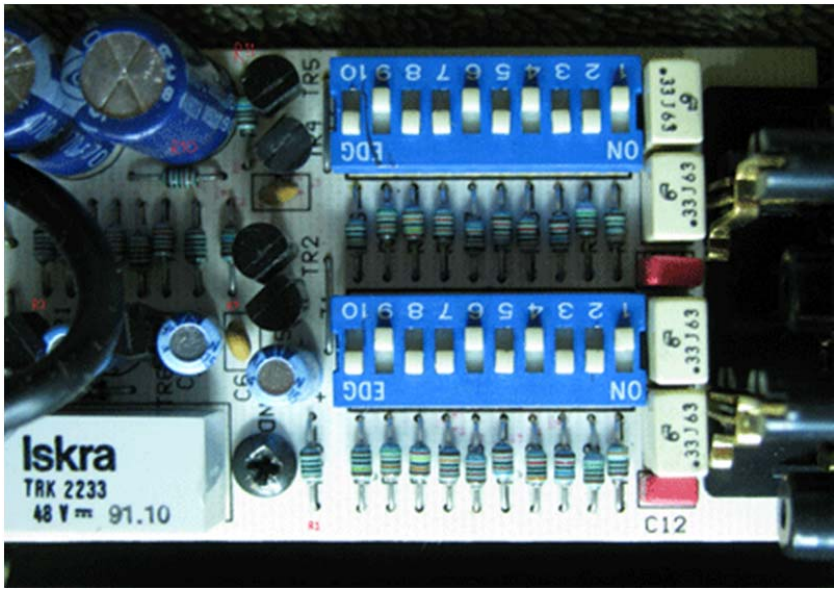


Fig. 1 and 2: B&W 800 Series Variable High-Pass Alignment Filter



The Vishay Foil Resistors application team came up with a proposal to meet the requirements for each and every resistor used in the circuit for the purpose of obtaining the correct high-pass alignment, using VSH types that offer superior transparency for this application than their encapsulated S types, while remaining immune to RFI.

I really appreciate how the Vishay Foil Resistors application team went out of their way to help make this project possible. I have always relied on Bulk Metal® foil resistors for my most challenging projects to a point where I wouldn't even consider any other options, as I consider there are no alternative better options when it comes to the "best resistors" for a pure analog filter circuit.

Contact Information

Vishay Precision Group, Inc. (VPG)

Vishay Foil Resistors

foil@vishaypg.com

Find your regional contact here.

Arup Goswami
Director, Principal Design Engineer
Verity Audio & Engineering
Kolkata, India
Email: arup.goswami@gmail.com
Phone: [+91] - 9051051888