



# Small Signal Audio Design

By Douglas Self



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## Small Signal Audio Design By Douglas Self

*Small Signal Audio Design* is a unique guide to the design of high-quality circuitry for preamplifiers, mixing consoles, and a host of other signal-processing devices. Learn to use inexpensive and readily available parts to obtain state-of-the-art performance in all the vital parameters of noise, distortion, crosstalk and so on. Focusing mainly on preamplifiers and mixers this practical handbook gives you an extensive repertoire of circuits that can be put together to make almost any type of audio system.

A resource packed full of valuable information, with virtually every page revealing nuggets of specialized knowledge never before published. Essential points of theory that bear on practical performance are lucidly and thoroughly explained, with the mathematics kept to an essential minimum. Douglas' background in design for manufacture ensures he keeps a wary eye on the cost of things. Includes a chapter on power-supplies, full of practical ways to keep both the ripple and the cost down, showing how to power everything.

Douglas wears his learning lightly, and this book features the engaging prose style familiar to readers of his other books *The Audio Power Amplifier Design Handbook* and *Self on Audio*. You will learn why mercury cables are not a good idea, the pitfalls of plating gold on copper, and what quotes from Star Trek have to do with PCB design.

\*Provides an enormous amount of knowledge in one unique volume, making it an essential guide to design principles and practice in the wide are of small-signal audio

\*Includes numerous circuit blocks with all component values given so you can build on them and easily adapt them to your own requirements

\*Lavishly illustrated with diagrams and graphs, and full of practical measurements on real circuitry so you can be sure just how well it will perform

Learn how to:

- make amplifiers with apparently impossibly low noise
- design discrete circuitry that can handle enormous signals with vanishingly low distortion
- use humble low-gain transistors to make an amplifier with an input impedance of more than 50 Megohms
- transform the performance of low-cost-opamps, how to make filters with very low noise and distortion
- make incredibly accurate volume controls
- make a huge variety of audio equalisers
- make magnetic cartridge preamplifiers that have noise so low it is limited by basic physics
- sum, switch, clip, compress, and route audio signals

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### Editorial Review

#### Review

*"Douglas Self, who has been designing both pro and consumer audio products for more than 20 years gave an excellent tutorial on designing balanced interconnections. This talk was part of the Product Design track, so the goal, it seemed, was to expose product designers to the advantages of providing balanced connections (whether the user uses them or not) and that it can be done for very little added cost. He went through several evolutions of the differential amplifier and how to greatly improve common mode rejection for very little parts cost."--MikeRiversAudio.com*

#### From the Back Cover

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#### About the Author

Douglas Self has dedicated himself to demystifying amplifier design and establishing empirical design techniques based on electronic design principles and experimental data. His rigorous and thoroughly practical approach has established him as a leading authority on amplifier design, especially through the pages of Electronics World where he is a regular contributor.

## Users Review

#### From reader reviews:

##### **Marina Rutt:**

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