

Preface

This book is written for a variety of people involved in one way or another with power supplies and power systems. The primary audience consists of practicing power supply designers, people who have been in the field between 2 and 20 years: for them, *Practical Design of Power Supplies* is just that, a compendium of important knowledge needed on a daily basis. Too often, practicing engineers spend their days rushing about putting out fires (sometimes literally!), and don't have the time to dig through obscure manuals and references to obtain the information that would make life easier. For them, this book sets out exactly what they need to know to make a good power supply, with very detailed examples making it almost easy to do.

Practical Design of Power Supplies should also benefit skilled technicians in the field, those who have observed that doing this fixes that, but without knowing just why. I have tried to set everything out clearly, both the why and the how to—even those with dozens of years of experience will find things of interest. In particular, I have tried to encapsulate items of immediate practical use in a series of boxed **Practical Notes** and **Safety Tips** throughout the book; these features tell you things that will immediately make your work easier. There is also an appendix that defines every acronym used in the book, and a few of the symbols.

I have avoided making this a cookbook, since there are so many ways of making a workable design, and there are so many different circumstances: there are clear explanations of why things work, which enable you to make the right choices based on your own particular circumstances. Neither is this book full of long mathematical derivations, except in the part of Chapter 6 on closing the loop, where some mathematics is essential. My goal throughout has been to concentrate on the *practical* aspects of design, how to really do things that work and how to make practical measurements.

The book's examples all come from the field of low to medium power supplies (say 1W to 10kW), since that is where my experience lies. However, much of the material is applicable to higher power systems, and I hope will benefit practitioners there, too. Finally, I have intentionally avoided the subject of computer simulations (except for a brief

example in Chapter 6), feeling that this subject, treated properly, would require its own book.

I have greatly benefited over the years from the wise advice and unshakable good humor of my friend Stan Canter, one of the unsung heroes of the field. I wish to thank Anatoly Shteynberg and Ericsson EUS for providing the opportunity to present some of this material in an earlier form as a series of lectures, to Steve Cartier for explaining the mysteries of the telephone to me, and Chae Lee and Siliconix for patience during the writing process.

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