

Transformer and Inductor Design Handbook, Fourth Edition (Electrical and Computer **Engineering**)

By Colonel Wm. T. McLyman





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With its practical approach to design, **Transformer and Inductor Design** Handbook, Fourth Edition distinguishes itself from other books by presenting information and guidance that is shaped primarily by the user's needs and point of view. Expanded and revised to address recent industry developments, the fourth edition of this classic reference is re-organized and improved, again serving as a constant aid for anyone seeking to apply the state of the art in transformer and inductor design.

Carefully considering key factors such as overall system weight, power conversion efficiency, and cost, the author introduces his own new equation for the power handling ability of the core, intended to give engineers faster and tighter design control. The book begins by providing the basic fundamentals of magnetics, followed by an explanation of design using the Kg or Ap techniques. It also covers subjects such as laminations, tape cores, powder cores and ferrites, and iron alloys.

In addition, new topics include:

- Autotransformer design
- Common-mode inductor design
- Series saturable reactor design
- Self-saturating magnetic amplifier
- Designing inductors for a given resistance

With the goal of making inductors that are lighter and smaller but still meet requirements, this book helps users avoid many antiquated rules of thumb, to achieve a better, more economical design. Presenting transformer design examples with step-by-step directions and numerous tables and graphics for comparison, it remains a trusted guide for the engineers, technicians, and other professionals who design and evaluate transformers and inductors. It also serves as an ideal primer for students, illustrating the field for them from the ground up.

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Review

"Every transformer designer needs to have a copy of this book. Not only will it be helpful for designing transformers, but it provides an in-depth background of the fundamentals of transformer magnetic, including the latest designs used in modern switching power supplies."

?John J. Shea, IEEE Electrical Insulation Magazine, November/December 2012, Vol. 28, No. 6

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"Not only would the expert working on a specific design benefit from this handbook, but also the general reader would get a very good working knowledge on transformer design because the book covers fundamentals and magnetic material characteristics in a very clearly written, easy-to-read style. ... Along with all of the practical design examples, the book is filled with clear and well-annotated illustrations and circuit schematics that provide great insight; the many references make this book a must have for anyone designing transformers or inductors."

?IEEE Electrical Insulation Magazine, Feb. 2005

"This book is a must for engineers doing magnetic design. Whether you are working on high "rel" state of the art design or high volume, low cost production, this book will help you."

?Robert G. Noah, Application Engineering Manager (retired), Magnetics, Division of Spang and Company

About the Author

Colonel McLyman has forty-seven years of experience in the field of Magnetics, and holds fourteen United States Patents on Magnetics-related concepts. He retired as a Senior Member of the Avionics Equipment Section of the Jet Propulsion Laboratory (JPL) affiliated with the California Institute of Technology in Pasadena, California.

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