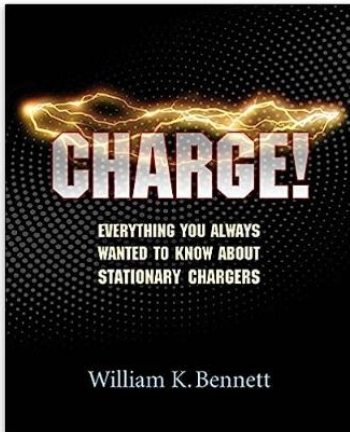


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Are you in the DC power industry? Interested in DC power conversion and control? Need a more technical understanding of charger products?

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Written by an IEEE engineer with 40 years in the field, *Charge!* will give you a deeper understanding of:

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 - Complexities of industrial battery applications
 - Intimate relationships between batteries, chargers, and other equipment
- User-friendly guide

Highly illustrated with charts and graphics

BOOK AS KNOWLEDGE BASE

All About Stationary Batteries and Battery Chargers

- Battery Systems ▾
- Utility Battery Chargers ▾
- Ripple and Filtering ▾
 - Introducing Ripple
 - Under The Hood: Source of Ripple
 - How is Ripple Bad For My DC Systems
 - Filters: How Do They Reduce Ripple?
 - Beyond Ripple: Other Electrical Noise
- Charger Output Current Limit ▾
- Temperature Effects on your DC system ▾
- Charger Alarms and Other Options ▾
- Different Charger Applications ▾
- Trouble Shooting ▾
- Utility Practices: Standards and Codes ▾

UNDER THE HOOD: SOURCE OF RIPPLE

Part of Chapter *Ripple and Filtering*

TOGGLE SIDEBAR TOC

BEFORE YOU GET started here, you'll find the material in *CHAPTER 2* on battery charger technology helpful.

UNAVOIDABLE BYPRODUCT OF CHANGING AC POWER TO DC POWER. 3.2.1

Ever since Tesla and Westinghouse showed us the way to make ac power transmission practical, we've spent a lot of time and effort developing better ways to change ac power back into dc power. *We need dc, of course, to charge batteries, and also to power critical equipment that must operate in the absence of the primary ac power source. Following is an overview of the methods we have of converting ac power to dc.

What are some early ways of changing ac to dc? 3.2.1.1

In the beginning, we used rotating machines. Can you say maintenance? Size? Weight? Noise? Ozone? As soon as the mercury arc rectifier became commercially viable (in the 1920s), industries moved quickly to adopt static converters (that is, no moving parts), although small M-G (motor-generator) sets persisted until the 1960s.

Development of the ignitron, thyatron, and other controlled rectifiers enabled *phase-controlled* rectification or conversion, which provides a much easier path to controlling the output voltage and current of a converter. With the exception of small thyratrons, however, these devices had a large drawback: a large pool of mercury, essential to its operation.