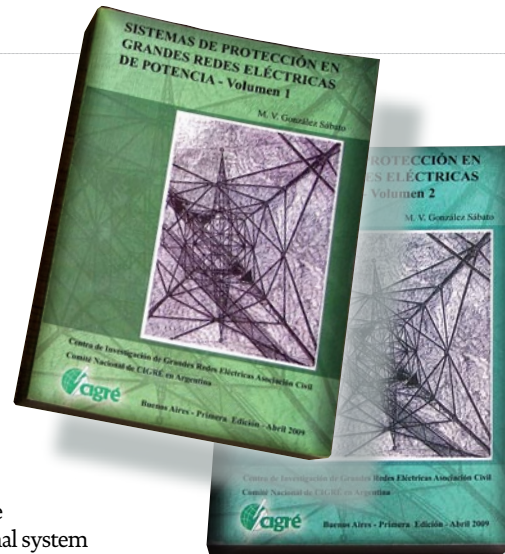


Protection Systems in Large Electrical Power Networks

First Edition - volumes 1 & 2



The protection of high voltage electric power systems is becoming more and more important due to the changes in the industry that require improvements in the performance of the protection systems and taking advantage of protection functions available in modern relays.

One of the main problems of our industry is the loss of expertise caused by the aging and retirement of many protection professionals. That is why the book "Protection Systems in Large Electrical Power Networks" by Manuel Victor González Sábato is very timely and can help the next generation of protection specialists in the improvement of their knowledge and understanding of the subject. The author of the book is well known in our industry and was the PAC World Guru in the Autumn 2007 issue of the magazine. He is also Honorary Professor at the National University of the South (Universidad Nacional del Sur), Argentina and has more than forty years of industrial and academic experience.

The book was edited in Spanish by "Centro de Investigación de Grandes Redes Eléctricas Asociación Civil" (CIGREAC) - the Argentinean National Committee of CIGRE. The book is divided into two volumes including fourteen chapters in approximately nine hundred pages.

Volume 1 of the book contains six chapters and Volume 2 – the remaining eight chapters. The book starts with an Introduction chapter

that

discusses the different abnormal system conditions that require the use of different types of protection devices and functions, followed by a chapter describing general practical criteria for the application of protections in large electrical power networks.

Chapter 3 describes the principles of overcurrent protection, setting criteria and coordination of these type of relays.

A significant part of the book is dedicated to the most common type of protection for transmission systems – distance protection. The first of four chapters covering distance protection discusses the fundamental principles and its application to transmission lines. Teleprotection schemes using distance protection functions are described in Chapter 5. After the introduction of different types of accelerated schemes, the author also discusses telecommunications equipment and systems, and the issues of reliability and security.

Chapter 6 goes further into the details of distance protection and covers sources of errors and the solutions to resolve such errors.

Chapter 7 is the first in Volume 2. It focuses on the implementation of distance functions in digital protection relays and covers filters and numerical algorithms used for distance protection. Unit protection of transmission lines is described in Chapter 8 of the book. It covers directional comparison protection

and line differential protection and their application to different transmission line configurations.

The next four chapters cover the principles and issues related to the protection of transformers, busbars, generators, reactors and capacitors banks.

Chapter 13 discusses different technologies used for protection relays – solid state and numerical, while the last chapter describes the current and voltage transformers and their impact on the performance of the protection devices.

The book is a very good mix of protection fundamentals, practical discussions of typical and advanced applications based on conventional and digital technologies. The theory is presented in an easy to understand manner that provides sufficient detail without being overwhelming to the reader. This makes it a very valuable tool to newcomers and seasoned professionals in the field of transmission systems protection.

The book is available at this stage only in Spanish (Sistemas de Protección en Grandes Redes Eléctricas de Potencia) and can be purchased through the Argentinean National Committee of CIGRE. ■

by Manuel Victor González Sábato
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