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IEEE Guide for Automatic Reclosing on AC Distribution and Transmission Lines

IEEE Power and Energy Society

Developed by the
Power System Relaying Committee

IEEE Std C37.104™-2022
(Revision of IEEE Std C37.104-2012)

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Abstract: Accepted industry practices for application of automatic reclosing on transmission and distribution lines are documented in this guide. The guide discusses fundamentals of automatic reclosing, application considerations, and coordination practices. Application of emerging technologies for automatic reclosing is also discussed.

Keywords: automatic line sectionalizer, automatic reclosing, autoreclose blocking, autoreclose supervision, autoreclosing, dead time, fuse blowing scheme, fuse saving scheme, high-speed autoreclosing, IEEE C37.104™, leader-follower autoreclosing, reclosing, sync check, sync check supervision, time delayed autoreclosing, voltage supervision

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Introduction

This introduction is not part of IEEE Std C37.104-2022, IEEE Guide for Automatic Reclosing on AC Distribution and Transmission Lines.

Since most faults on overhead distribution and transmission lines are temporary in nature, the automatic reclosing is commonly applied to quickly re-energize a line to restore system integrity, service to customers, or both. This guide presents generally accepted industry practices for application of autoreclosing on both distribution and transmission lines.

Clause 4 discusses fundamentals of automatic reclosing such as autoreclose settings, autoreclose supervision, autoreclose blocking, and general application considerations on distribution and transmission lines.

Clause 5 focuses on autoreclosing practices for distribution lines. Distribution lines often contain sectionalizing equipment such as circuit breakers, fuses, reclosers, and sectionalizers to isolate faulted sections of the line. Autoreclosing coordination practices involving coordination with circuit reclosers, automatic line sectionalizers, fuse saving and fuse blowing schemes, as well as distributed energy resources are presented.

Clause 6 focuses on autoreclosing practices for transmission lines. Application considerations for high-speed autoreclosing, single-phase tripping and autoreclosing, impact on stability and turbine-generator, series compensated lines, lines with in-series or tapped transformers, multi-terminal lines, line sectionalizing schemes, etc., are discussed in detail.

The application of emerging technologies such as use of ethernet based, point-on-wave and pulse closing for autoreclosing is discussed in Clause 7. Application of using fault location on hybrid or mixed line for autoreclosing and multi-phase tripping and reclosing are also presented in this clause.

This guide is intended for engineers who have knowledge of power system protection. This is an application guide and may not cover the considerations for all scenarios. Additional reading material is suggested in the Bibliography (Annex A).