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IEEE Guide for Power System Protective Relay Applications Over Digital Communication Channels

IEEE Power and Energy Society

Sponsored by the
Power System Relaying Committee

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Abstract: Guidance for the power system user in applying, installing and operating digital communication channels for the purpose of protective relaying is provided in this guide.
Keywords: ac pilot wire, alarm, asynchronous, audio Tone, channel, current differential, data communication equipment, data terminal equipment, DCE, DDS, digital data service, direct under-reaching transfer trip, DTE, DUTT, Ethernet, FC connector, fiber optic, GOOSE, Ground Potential Rise, IEEE C37.94™, IEEE C37.236™, jitter, LC connector, loopback, microwave, MT-RJ connector, multiplexer, phase comparison, radio frequency interference, RFI, RS-232, RS-422, RS-449, RS-530, signal attenuation, SONET, TDM, telecommunication, teleprotection, time division multiplex, transfer trip, tunneling, V.35, zone

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Introduction

This introduction is not part of IEEE Std C37.236-2013, IEEE Guide for Power System Protective Relay Applications Over Digital Communication Channels.

This is a guide for the application of digital communication for protective relaying systems and schemes. This document is intended to guide the power system user in applying, installing and operating digital communication channels for the purpose of protective relaying. This guide covers the topics including transmitting and receiving equipment, digital channels, application principals, performance, installation, troubleshooting, testing and maintenance.

There are several standards, environmental and otherwise, while not mandatory for the use of this document, are highly recommended and are listed in the bibliography.

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IEEE Guide for Power System Protective Relay Applications Over Digital Communication Channels

1. Overview

1.1 Scope

This is a guide for the application of digital communication for protective relaying systems and schemes, including transmitting and receiving equipment, digital channels, application principals, performance, installation, troubleshooting, testing and maintenance. Reflected in this guide are the knowledge and experience of equipment manufacturers and power utility users. This guide is not intended to supplant specific or general instructions contained in manufacturers' books nor any contractual agreements.

1.2 Purpose

The primary purpose of this document is to guide the power system user in applying, installing and operating digital communication channels for the purpose of protective relaying. The guide is prepared not only for those considering digital communication relaying for the first time, but also as a reference for the experienced user.