

IEEE Standard for N times 64 kbps Optical Fiber Interfaces between Teleprotection and Multiplexer Equipment

IEEE Power and Energy Society

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**Power System Relaying Committee and Power System Communications
Committee**
of the
IEEE Power and Energy Society

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Abstract: An optical interface for use between teleprotection and digital multiplexer equipment that can operate at a data rate of $N \times 64$ kbps where $N = 1, 2 \dots 12$ is described in this standard. Requirements for both physical connection and the communications timing are also included.

Keywords: alarm indication signal, bit error rate, cyclic redundancy check, IEEE C37.94™, loss of frame, loss of signal, multimode optical fiber, multiplexer, remote defect indication, single-mode optical fiber, teleprotection, unit intervals

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Participants

At the time this IEEE standard was completed, the Optical Fiber Interface Working Group had the following membership:

Marc Benou, *Chair*
Dylan Jenkins, *Vice Chair*

Galina Antonova
Thomas Dahlin
Jim Ebrecht

Jerry Finley
Kenneth Fodero
Chris Huntley
Bob Ince

Tim Phillippe
Roger Ray
Malcolm Swanson

The following members of the individual balloting committee voted on this standard. Balloters may have voted for approval, disapproval, or abstention.

Philip Beaumont
Marc Benou
William Byrd
Paul Cardinal
Arvind Chaudhary
Stephen Conrad
Thomas Dahlin
Michael Dood
Jerry Finley
Kenneth Fodero
Dominick Fontana
Rafael Garcia

Randall Groves
Chris Huntley
Richard Jackson
Joseph L. Koepfinger
Jim Kulchisky
Robert Landman
Michael Newman
Gary Nissen
James O'Brien
Lorraine Padden
Roger Ray
Miriam Sanders
Steven Sano

Bartien Sayogo
Mark Simon
Veselin Skendzic
Jeremy Smith
Demetrios Tziouvaras
Joe Uchiyama
James Van De Ligt
John Vergis
Sukhdev Walia
John Wang
Roger Whittaker
Philip Winston

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Chuck Adams
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Michael Janezic
Thomas Koshy
Joseph L. Koepfinger*
Kevin Lu
Daleep Mohla
Damir Novosel
Ronald Petersen
Annette D. Reilly

Robby Robson
Dorothy Stanley
Adrian Stephens
Mehmet Ulema
Phil Wennblom
Howard Wolfman
Yu Yuan

*Member Emeritus

Introduction

This introduction is not part of IEEE Std C37.94–2017, IEEE Standard for $N \times 64$ kbps Optical Fiber Interfaces between Teleprotection and Multiplexer Equipment.

This is a revision of IEEE Std C37.94–2002. Existing interface standards between teleprotection equipment and multiplexers are electrical only. These low-energy signal interfaces are susceptible to intra-substation electromagnetic interference (EMI). The use of dedicated optical fibers for the intra-substation communication links between teleprotection equipment and multiplexers eliminates the data corruption common to electrical connections. This revision adds support for single-mode fiber.

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