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

IEEE Power and Energy Society

Sponsored by the
Power System Relaying Committee and Power System Communications Committee

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USA

IEEE Std C37.94™-2017
(Revision of IEEE Std C37.94-2002)

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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 $N = 1, 2 \ldots 12$ 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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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.

Contents