

C37.92™

IEEE Standard for Analog Inputs to Protective Relays from Electronic Voltage and Current Transducers

IEEE Power Engineering Society

Sponsored by the
Power System Relaying Committee



3 Park Avenue, New York, NY 10016-5997, USA

20 September 2005

Print: SH95337

PDF: S394337



Documents

Document Sharing Hub

IEEE Standard for Analog Inputs to Protective Relays from Electronic Voltage and Current Transducers

Sponsor
**Power System Relaying Committee
of the
IEEE Power Engineering Society**

Approved 20 March 2005
Reaffirmed 31 March 2011

IEEE-SA Standards Board

Approved 25 July 2005
American National Standards Institute

Abstract: Electronic devices that develop or utilize analog signals are not presently covered by standards. This Standard provides interface connectivity of modern power-system signal transducers based on electronics, such as magneto-optic current transducers, and electronic relays. The existing standardized levels from familiar magnetic current and voltage transformers are not readily generated by new types of electronic signal transducers.

Keywords: phase correction, phase error, polarity, sensing system, transient response

The Institute of Electrical and Electronics Engineers, Inc.
3 Park Avenue, New York, NY 10016-5997, USA

Copyright © 2005 by the Institute of Electrical and Electronics Engineers, Inc.

All rights reserved. Published 20 September 2005. Printed in the United States of America.

IEEE is a registered trademark in the U.S. Patent & Trademark Office, owned by the Institute of Electrical and Electronics Engineers, Incorporated.

IEEE Standards documents are developed within the IEEE Societies and the Standards Coordinating Committees of the IEEE Standards Association (IEEE-SA) Standards Board. The IEEE develops its standards through a consensus development process, approved by the American National Standards Institute, which brings together volunteers representing varied viewpoints and interests to achieve the final product. Volunteers are not necessarily members of the Institute and serve without compensation. While the IEEE administers the process and establishes rules to promote fairness in the consensus development process, the IEEE does not independently evaluate, test, or verify the accuracy of any of the information contained in its standards.

Use of an IEEE Standard is wholly voluntary. The IEEE disclaims liability for any personal injury, property or other damage, of any nature whatsoever, whether special, indirect, consequential, or compensatory, directly or indirectly resulting from the publication, use of, or reliance upon this, or any other IEEE Standard document.

The IEEE does not warrant or represent the accuracy or content of the material contained herein, and expressly disclaims any express or implied warranty, including any implied warranty of merchantability or fitness for a specific purpose, or that the use of the material contained herein is free from patent infringement. IEEE Standards documents are supplied “**AS IS**.”

The existence of an IEEE Standard does not imply that there are no other ways to produce, test, measure, purchase, market, or provide other goods and services related to the scope of the IEEE Standard. Furthermore, the viewpoint expressed at the time a standard is approved and issued is subject to change brought about through developments in the state of the art and comments received from users of the standard. Every IEEE Standard is subjected to review at least every five years for revision or reaffirmation. When a document is more than five years old and has not been reaffirmed, it is reasonable to conclude that its contents, although still of some value, do not wholly reflect the present state of the art. Users are cautioned to check to determine that they have the latest edition of any IEEE Standard.

In publishing and making this document available, the IEEE is not suggesting or rendering professional or other services for, or on behalf of, any person or entity. Nor is the IEEE undertaking to perform any duty owed by any other person or entity to another. Any person utilizing this, and any other IEEE Standards document, should rely upon the advice of a competent professional in determining the exercise of reasonable care in any given circumstances.

Interpretations: Occasionally questions may arise regarding the meaning of portions of standards as they relate to specific applications. When the need for interpretations is brought to the attention of IEEE, the Institute will initiate action to prepare appropriate responses. Since IEEE Standards represent a consensus of concerned interests, it is important to ensure that any interpretation has also received the concurrence of a balance of interests. For this reason, IEEE and the members of its societies and Standards Coordinating Committees are not able to provide an instant response to interpretation requests except in those cases where the matter has previously received formal consideration.

Comments for revision of IEEE Standards are welcome from any interested party, regardless of membership affiliation with IEEE. Suggestions for changes in documents should be in the form of a proposed change of text, together with appropriate supporting comments. Comments on standards and requests for interpretations should be addressed to:

Secretary, IEEE-SA Standards Board
445 Hoes Lane
Piscataway, NJ 08854
USA

Note: Attention is called to the possibility that implementation of this standard may require use of subject matter covered by patent rights. By publication of this standard, no position is taken with respect to the existence or validity of any patent rights in connection therewith. The IEEE shall not be responsible for identifying patents for which a license may be required by an IEEE standard or for conducting inquiries into the legal validity or scope of those patents that are brought to its attention.

Authorization to photocopy portions of any individual standard for internal or personal use is granted by the Institute of Electrical and Electronics Engineers, Inc., provided that the appropriate fee is paid to Copyright Clearance Center. To arrange for payment of licensing fee, please contact Copyright Clearance Center, Customer Service, 222 Rosewood Drive, Danvers, MA 01923 USA; (978) 750-8400. Permission to photocopy portions of any individual standard for educational classroom use can also be obtained through the Copyright Clearance Center.

Introduction

This introduction is not part of IEEE Std C37.92-2005, IEEE Standard for Analog Inputs to Protective Relays from Electronic Voltage and Current Transducers.

Notice to users

Errata

Errata, if any, for this and all other standards can be accessed at the following URL: <http://standards.ieee.org/reading/ieee/updates/errata/index.html>. Users are encouraged to check this URL for errata periodically.

Interpretations

Current interpretations can be accessed at the following URL: <http://standards.ieee.org/reading/ieee/interp/index.html>.

Patents

Attention is called to the possibility that implementation of this standard may require use of subject matter covered by patent rights. By publication of this standard, no position is taken with respect to the existence or validity of any patent rights in connection therewith. The IEEE shall not be responsible for identifying patents or patent applications for which a license may be required to implement an IEEE standard or for conducting inquiries into the legal validity or scope of those patents that are brought to its attention.

Participants

At the time this recommended practice was completed, the Low Energy Analog Signal Inputs to Protective Relaying Working Group had the following membership:

Eric A. Udren, *Chair*
P.G. McLaren, *Secretary*

Douglas Dawson
Paul Drum
Harley Gilleland

Charles Henville
William Kotheimer
P.J. Lerley

Veselin Skendzic
John Tengdin

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

William Ackerman
Mark Adamiak
Steve Alexanderson
Munnu Bajpai
Kenneth Behrendt
Stuart Bouchey
Robert Bratton
Gustavo Brunello
Jeffrey Burnworth
Thomas W. Cease
John W. Chadwick, Jr.
Simon Chano
Dr. Guru Dutt Dhingra
Ratan Das
Douglas Dawson
Paul Drum

Kenneth Fodero
Harley Gilleland
Mietek Glinkowski
Roger Hedding
Charles Henville
Edward Horgan, Jr.
James D. Huddleston, III
Mr. Rene Jonker
William Kotheimer
Daniel Love
Gregory Luri
Jesus Martinez
Thomas McCaffrey
Michael McDonald
Mark McGranaghan
Peter McLaren

Dean Miller
Gary Michel
Daleep Mohla
Bruce Muschlitz
James Ruggieri
Mohindar Sachdev
David Schempp
Thomas Schossig
Tony Seegers
Tarlochan Sidhu
Mark Simon
Veselin Skendzic
John Tengdin
Demetrios Tziouvaras
Joe Uchiyama
Eric A. Udren

When the IEEE-SA Standards Board approved this standard on 20 March 2005, it had the following membership:

Steve M. Mills, *Chair*
Richard H. Hulett, *Vice Chair*
Judith Gorman, *Secretary*

Mark D. Bowman
Dennis B. Brophy
Joseph Bruder
Richard Cox
Bob Davis
Julian Forster*
Joanna N. Guenin
Mark S. Halpin
Raymond Hapeman

William B. Hopf
Lowell G. Johnson
Herman Koch
Joseph L. Koepfinger*
David J. Law
Daleep C. Mohla
Paul Nikolic
T. W. Olsen

Glenn Parsons
Ronald C. Petersen
Gary S. Robinson
Frank Stone
Malcolm V. Thaden
Richard L. Townsend
Joe D. Watson
Howard L. Wolfman

*Members Emeritus

Also included are the following non-voting IEEE-SA Standards Board liaisons:

Satish K. Aggarwal, *NRC Representative*
Richard DeBlasio, *DOE Representative*
Alan Cookson, *NIST Representative*

Michael D. Fisher
IEEE Standards Project Editor