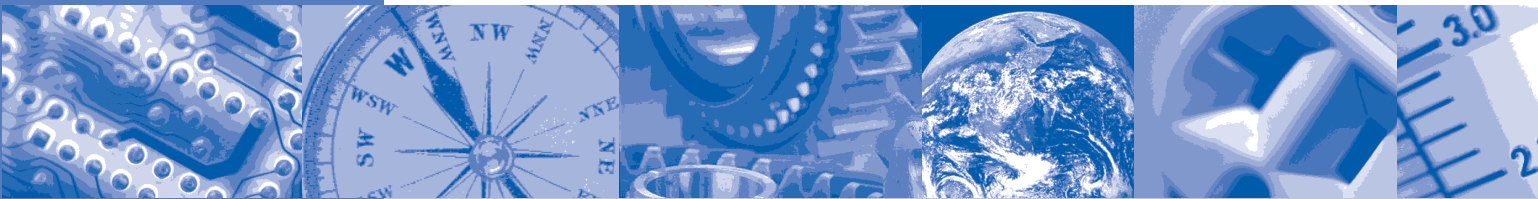


ANSI/ISA–S82.02.04–1996 (IEC 1010-2-032)



Safety Requirements for Electrical Equipment for Measurement, Control, and Laboratory Use

Identical to IEC 1010-2-032



Approved 31 May 1996



ANSI/ISA-S82.02.04-1996 (IEC 1010-2-032), Safety Requirements for Electrical Equipment for Measurement, Control, and Laboratory Use

ISBN: 1-55617-608-2

Copyright © 1996 by the Instrument Society of America. All rights reserved. Printed in the United States of America. No part of this publication may be reproduced, stored in a retrieval system, or transmitted, in any form or by any means (electronic, mechanical, photocopying, recording, or otherwise), without the prior written permission of the Publisher.

ISA
67 Alexander Drive
P. O. Box 12277
Research Triangle Park, North Carolina 27709

Preface

This preface as well as all footnotes and annexes are included for informational purposes and is not part of ANSI/ISA-S82.02.04-1996 (IEC 1010-2-032).

This standard has been prepared as part of the service of ISA, the international society for measurement and control, toward a goal of uniformity in the field of instrumentation. To be of real value, this document should not be static but should be subject to periodic review. Toward this end, the Society welcomes all comments and criticisms and asks that they be addressed to the Secretary, Standards and Practices Board; ISA; 67 Alexander Drive; P. O. Box 12277; Research Triangle Park, NC 27709; Telephone (919) 549-8411; Fax (919) 549-8288; E-mail: Standards@isa.org.

The ISA Standards and Practices Department is aware of the growing need for attention to the metric system of units in general, and the International System of Units (SI) in particular, in the preparation of instrumentation standards, recommended practices, and technical reports. The Department is further aware of the benefits to USA users of ISA standards of incorporating suitable references to the SI (and the metric system) in their business and professional dealings with other countries. Toward this end, this Department will endeavor to introduce SI-acceptable metric units in all new and revised standards to the greatest extent possible. *The Metric Practice Guide*, which has been published by the Institute of Electrical and Electronics Engineers as ANSI/IEEE Std. 268-1992, and future revisions, will be the reference guide for definitions, symbols, abbreviations, and conversion factors.

It is the policy of ISA to encourage and welcome the participation of all concerned individuals and interests in the development of ISA standards. Participation in the ISA standards-making process by an individual in no way constitutes endorsement by the employer of that individual, of ISA, or of any of the standards, recommended practices, and technical reports that ISA develops.

The following members of ISA Subcommittee SP82.02 contributed to the development of this document:

NAME

COMPANY

R. Masek, Chairman
D. Bishop, Managing Director
A. Abramowitz
*T. Bell
D. Braudaway
R. Corson
P. Fabry
B. Feikle
B. Gibson
D. Hanson
W. Howard
A. Jacobson

Bailey Controls Company
Chevron USA Production Company
Simpson Electric Company
Underwriters Laboratories Inc.
Sandia National Labs
Hewlett-Packard
Canadian Standards Association
OTIS Elevator Company
ABB Kennt-Taylor Inc.
Tektronix
Gulton Graphic Instruments
Consultant



NAME**COMPANY**

T. Kimble
*M. Leimbeck
D. Madsen
E. Magison
F. McGowan
H. O'Neil
P. Painchaud
J. Quinlan
M. Rains
E. Russo
F. Russo
H. Voorheis

E. I. du Pont de Nemours
Underwriters Laboratories Inc.
Beckman Instruments Inc.
Honeywell, Inc.
Factory Mutual Research Corporation
Hutchinson AVTI
Painchaud Consultants
Avo Biddle Instruments
Foxboro Company
Dranetz Technologies Inc.
ENEL-DSR
Fluke Corporation

*One vote per company

The following members of ISA Committee SP82 contributed to the development of this document:

NAME**COMPANY**

D. Braudaway, Co-Chairman
F. McGowan, Co-Chairman
D. Bishop, Managing Director
*T. Bell
B. Feikle
B. Gibson
W. Howard
A. Jacobson
*M. Leimbeck
R. Masek
H. O'Neil
P. Painchaud
P. Perkins
H. Voorheis

Sandia National Labs
Factory Mutual Research Corporation
Chevron USA Production Company
Underwriters Laboratories Inc.
OTIS Elevator Company
ABB Kennt-Taylor Inc.
Gulton Graphic Instruments
Consultant
Underwriters Laboratories Inc.
Bailey Controls Company
Hutchinson AVTI
Painchaud Consultants
Consultant
Fluke Corporation

*One vote per company

This revised standard was approved for publication by the ISA Standards and Practices Board in May 1996.

NAME

COMPANY

M. Widmeyer, Vice President	Washington Public Power Supply System
H. Baumann	H. D. Baumann & Associates, Ltd.
D. Bishop	Chevron USA Production Company
P. Brett	Honeywell, Inc.
*W. Calder III	Factory Mutual Research Corporation
H. Dammeyer	Phoenix Industries, Inc.
R. Dieck	Pratt & Whitney
W. Holland	Southern Company Services, Inc.
H. Hopkins	Utility Products of Arizona
A. Iverson	Lyondell Petrochemical Company
K. Lindner	Endress + Hauser GmbH + Company
T. McAvinew	Metro Wastewater Reclamation District
A. McCauley, Jr.	Chagrin Valley Controls, Inc.
G. McFarland	Honeywell Industrial Automation & Controls
J. Mock	Consultant
E. Montgomery	Fluor Daniel, Inc.
D. Rapley	Rapley Engineering Services
R. Reimer	Allen-Bradley Company
*J. Rennie	Factory Mutual Research Corporation
R. Webb	Pacific Gas & Electric Company
W. Weidman	Consultant
J. Weiss	Electric Power Research Institute
J. Whetstone	National Institute of Standards & Technology
H. Wiegler	Canus Corporation
C. Williams	Eastman Kodak Company
G. Wood	Graeme Wood Consulting
M. Zielinski	Fisher-Rosemount



Documents

Document Sharing Hub

Contents

Preface	3
Foreword	9
1 Scope and object	11
2 Normative references	11
3 Definitions	12
4 Tests	13
5 Marking and documentation	13
6 Protection against electric shock	14
7 Protection against mechanical hazards	17
8 Mechanical resistance to shock, vibration, and impact	17
9 Equipment temperature limits and protection against the spread of fire	17
10 Resistance to heat	17
11 Resistance to moisture and liquids	17
12 Protection against radiation, including laser sources, and against sonic and ultrasonic pressure	18
13 Protection against liberated gases, explosion, and implosion	18



14 Components	18
15 Protection by interlocks	18
Annexes	19