

GUIDE



The preparation of safety publications and the use of basic safety publications and group safety publications

<https://standards.iteh.ai/catalog/standards/sist/6a7b6ecf-7ae1-4fbf-a6f7-586ad4baebca/iec-guide-104-2010>



THIS PUBLICATION IS COPYRIGHT PROTECTED

Copyright © 2010 IEC, Geneva, Switzerland

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from either IEC or IEC's member National Committee in the country of the requester.

If you have any questions about IEC copyright or have an enquiry about obtaining additional rights to this publication, please contact the address below or your local IEC member National Committee for further information.

IEC Central Office
3, rue de Varembe
CH-1211 Geneva 20
Switzerland
Email: inmail@iec.ch
Web: www.iec.ch

About the IEC

The International Electrotechnical Commission (IEC) is the leading global organization that prepares and publishes International Standards for all electrical, electronic and related technologies.

About IEC publications

The technical content of IEC publications is kept under constant review by the IEC. Please make sure that you have the latest edition, a corrigenda or an amendment might have been published.

- Catalogue of IEC publications: www.iec.ch/searchpub

The IEC on-line Catalogue enables you to search by a variety of criteria (reference number, text, technical committee,...). It also gives information on projects, withdrawn and replaced publications.

- IEC Just Published: www.iec.ch/online_news/justpub

Stay up to date on all new IEC publications. Just Published details twice a month all new publications released. Available on-line and also by email.

- Electropedia: www.electropedia.org

The world's leading online dictionary of electronic and electrical terms containing more than 20 000 terms and definitions in English and French, with equivalent terms in additional languages. Also known as the International Electrotechnical Vocabulary online.

- Customer Service Centre: www.iec.ch/webstore/custserv

If you wish to give us your feedback on this publication or need further assistance, please visit the Customer Service Centre FAQ or contact us:

Email: csc@iec.ch
Tel.: +41 22 919 02 11
Fax: +41 22 919 03 00

GUIDE



The preparation of safety publications and the use of basic safety publications and group safety publications

<https://standards.iteh.ai/catalog/standards/sist/ea/746ecf-7ae1-4fbf-a6f7-586ad4baebca/iec-guide-104-2010>

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

PRICE CODE

R

ICS 29.020

ISBN 978-2-88912-140-3

CONTENTS

FOREWORD.....	3
INTRODUCTION.....	5
1 Scope.....	6
2 Normative references.....	6
3 Terms and definitions	6
4 Assignment of horizontal safety functions and of group safety functions	7
5 Safety publications.....	8
5.1 Basic safety publications and group safety publications.....	8
5.1.1 General	8
5.1.2 Basic safety publications.....	8
5.1.3 Group safety publications.....	8
5.2 Product safety publications	9
5.3 References to other publications.....	10
5.4 Safety during the life of equipment.....	10
6 Responsibilities of TCs with horizontal safety functions or group safety functions.....	10
6.1 Liaison with other TCs	10
6.2 Requests from product TCs for new work.....	11
7 Responsibilities of product TCs.....	11
7.1 General	11
7.2 Application of basic safety publications.....	11
7.3 Application of group safety publications.....	11
7.4 New work requests to TCs with safety functions.....	12
Annex A (normative) Safety aspects relating to electrical equipment.....	13
Annex B (informative) Relationship between different levels within the IEC	18
Bibliography.....	19

INTERNATIONAL ELECTROTECHNICAL COMMISSION

**THE PREPARATION OF SAFETY PUBLICATIONS AND
THE USE OF BASIC SAFETY PUBLICATIONS AND
GROUP SAFETY PUBLICATIONS**

FOREWORD

- 1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as "IEC Publication(s)"). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
- 2) The formal decisions or agreements of IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested IEC National Committees.
- 3) IEC Publications have the form of recommendations for international use and are accepted by IEC National Committees in that sense. While all reasonable efforts are made to ensure that the technical content of IEC Publications is accurate, IEC cannot be held responsible for the way in which they are used or for any misinterpretation by any end user.
- 4) In order to promote international uniformity, IEC National Committees undertake to apply IEC Publications transparently to the maximum extent possible in their national and regional publications. Any divergence between any IEC Publication and the corresponding national or regional publication shall be clearly indicated in the latter.
- 5) IEC itself does not provide any attestation of conformity. Independent certification bodies provide conformity assessment services and, in some areas, access to IEC marks of conformity. IEC is not responsible for any services carried out by independent certification bodies.
- 6) All users should ensure that they have the latest edition of this publication.
- 7) No liability shall attach to IEC or its directors, employees, servants or agents including individual experts and members of its technical committees and IEC National Committees for any personal injury, property damage or other damage of any nature whatsoever, whether direct or indirect, or for costs (including legal fees) and expenses arising out of the publication, use of, or reliance upon, this IEC Publication or any other IEC Publications.
- 8) Attention is drawn to the Normative references cited in this publication. Use of the referenced publications is indispensable for the correct application of this publication.
- 9) Attention is drawn to the possibility that some of the elements of this IEC Publication may be the subject of patent rights. IEC shall not be held responsible for identifying any or all such patent rights.

This fourth edition of IEC Guide 104 has been prepared, in accordance with ISO/IEC Directives, Part 1, Annex A, by the IEC Advisory Committee on Safety (ACOS). This guide is a mandatory guide in accordance with SMB Decision 136/8.

This fourth edition cancels and replaces the third edition published in 1997.

The main changes with respect to the previous edition are as follows:

- 1) updates the third edition, in the light of experience, to align it with IEC Guide 108, *Guidelines for ensuring the coherency of IEC publications – Application of horizontal standards*;
- 2) includes a better description of the group safety function and group safety publications in subclause 5.1.3;
- 3) includes a clarification in Annex A of measures in case of a single fault condition;
- 4) deletes Annexes B and C of the third edition;

- 5) stipulates that the reference to technical committees with a basic and/or group safety function is to be given in the IEC Catalogue or on the IEC Website;
- 6) replaces the word “should” by “shall” in several places, due to the fact that this Guide 104 is mandatory.

The text of this IEC Guide is based on the following documents:

Four month's vote	Report on voting
C/1601/DV	C/1622/RV

Full information on the voting for the approval of this Guide can be found in the report on voting indicated in the above table.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

A bilingual version of this publication may be issued at a later date.

IMPORTANT – The 'colour inside' logo on the cover page of this publication indicates that it contains colours which are considered to be useful for the correct understanding of its contents. Users should therefore print this document using a colour printer.

IEC GUIDE 104:2010
<https://standards.iteh.ai/catalog/standards/sist/6a7b6ecf-7ae1-4fbf-a6f7-586ad4baebca/iec-guide-104-2010>

INTRODUCTION

Technical Committees dealing with subjects relating to safety for the whole, or for a specific part, of their activities, are required by SMB Decision 136/8 to follow the provisions of this Guide, which is to be used in conjunction with the ISO/IEC Directives and with the Guide listed under Clause 2.

In this Guide, the term “technical committees”, hereinafter referred to as TCs, also includes subcommittees. The term “publication” includes “standard”, “technical report”, “technical specification” and “guide”. In addition, the term “product” includes “process”, “service” and combinations thereof, commonly known as “systems”.



iTeh STANDARD PREVIEW
(standards.iteh.ai)

IEC GUIDE 104:2010

<https://standards.iteh.ai/catalog/standards/sist/6a7b6ecf-7ae1-4fbf-a6f7-586ad4baebca/iec-guide-104-2010>

THE PREPARATION OF SAFETY PUBLICATIONS AND THE USE OF BASIC SAFETY PUBLICATIONS AND GROUP SAFETY PUBLICATIONS

1 Scope

This mandatory Guide defines procedures for the preparation of safety publications in addition to ISO/IEC Guide 51, including the preparation and use of basic safety publications and group safety publications. It also describes the relationship between TCs with horizontal safety functions or group safety functions and product TCs.

In the context of this guide, "safety" relates to the safety of persons, domestic animals, livestock and property.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO/IEC Directives, Part 1, *Procedures for the technical work*

ISO/IEC Directives, Part 2, *Rules for the structure and drafting of International Standards*

ISO/IEC Guide 51, *Safety aspects – Guidelines for their inclusion in standards*

3 Terms and definitions

For the purposes of this document, the terms and definitions of ISO/IEC Guide 51 as well as the following terms and definitions apply.

3.1

basic safety publication

publication on a specific safety-related matter, applicable to many electrotechnical products

3.2

group safety publication

publication covering all safety aspects of a specific group of products within the scope of two or more product TCs

NOTE Group safety publications are primarily intended to be stand-alone product safety publications, but may also be used by TCs as source material in the preparation of their publications, as detailed in 7.3.

3.3

product safety publication

publication covering all safety aspects of one or more products within the scope of a single product TC

3.4

product TC

TC with a scope which covers a specific product or group of products

3.5**horizontal safety function**

task assigned to a TC to prepare one or more basic safety publications

3.6**group safety function**

task assigned to a **product TC** to prepare one or more group safety publications

3.7**normal condition**

condition in which all means of protection are intact

3.8**single fault condition**

condition in which there is a fault of a single protection (but not a reinforced protection) or of a single component or a device

NOTE If a single fault condition results in one or more other fault conditions, all are considered as one single fault condition.

3.9**reinforced protection**

single protection system, which provides a degree of protection against hazards equivalent to two levels of protection

4 Assignment of horizontal safety functions and of group safety functions

The assignment of horizontal safety functions and of group safety functions is the responsibility of the Advisory Committee on Safety (ACOS), subject to confirmation by the SMB (Standardization Management Board). For the structure of IEC safety standards see Annex B.

Assignments are periodically reviewed by ACOS.

The assignment of a horizontal safety function or a group safety function to a technical committee is made with the purpose of:

- ensuring the consistency of IEC publications relating to safety aspects common to a number of technical committees by avoiding duplication of work and contradictory requirements;
- reducing the size and cost of IEC publications by avoiding duplication of texts;
- improving mutual understanding among engineers of different technical disciplines.

A horizontal safety function or a group safety function may be assigned to a TC for the whole or for a specific part of its activities.

The IEC Catalogue and website (see also http://www.iec.ch/dyn/www/f?p=103:44:0:::FSP_ORG_ID,FSP_LANG_ID:3235,25) shall provide a method for identifying basic safety publications and horizontal safety publications.

5 Safety publications

5.1 Basic safety publications and group safety publications

5.1.1 General

Basic safety publications and group safety publications shall contain only matters relevant to the horizontal safety function or group safety function, and should be written in a manner clearly understandable by product TCs.

5.1.2 Basic safety publications

5.1.2.1 Basic safety publications should explain the principles on which they are founded, in order to assist product TCs in applying their provisions. In addition, guidance should be given to product TCs on how to apply information from a basic safety publication, for example, how to choose the appropriate level of severity for a particular test.

5.1.2.2 A basic safety publication shall include in its scope the essence of the text given below:

"This basic safety publication is primarily intended for use by technical Committees in the preparation of standards in accordance with the principles laid down in IEC Guide 104 and ISO/IEC Guide 51. It is not intended for use by manufacturers or certification bodies.

One of the responsibilities of a technical committee is, wherever applicable, to make use of basic safety publications in the preparation of its publications. The requirements, test methods or test conditions of this basic safety publication will not apply unless specifically referred to or included in the relevant publications."

In a few cases, a basic safety publication may, in addition, be intended for use as a stand-alone publication. In such cases, the first paragraph of the above statement should be modified accordingly.

A basic safety publication shall include IEC Guide 104 and ISO/IEC Guide 51 in its list of normative references.

5.1.2.3 It is essential that basic safety publications not be frequently amended or frequently revised, because product TCs must be given time to align their publications with the current edition.

5.1.3 Group safety publications

5.1.3.1 Group safety publications are primarily intended as product safety publications, but shall also be used by other product TCs in applying their provisions. In addition, guidance should be given to product TCs on how to apply information from a group safety publication, for example, how to choose the appropriate level of severity for a particular test described in a basic safety publication.

5.1.3.2 A group safety publication shall include in its scope the essence of the text given below:

"This group safety publication is primarily intended to be used as a product safety standard for the products mentioned in the scope, but shall also be used by technical committees in the preparation of standards for products similar to those mentioned in the scope of this standard, in accordance with the principles laid down in IEC Guide 104 and ISO/IEC Guide 51.

One of the responsibilities of a technical committee is, wherever applicable, to make use of basic safety publications and/or group safety publications in the preparation of its publications."

A group safety publication shall include IEC Guide 104 and ISO/IEC Guide 51 in its list of normative references.

5.1.3.3 It is essential that group safety publications not be frequently amended or frequently revised, because product TCs must be given time to align their publications with the current edition.

5.2 Product safety publications

5.2.1 In specifying requirements intended to eliminate hazards and reduce risks, the following principles shall be applied:

- equipment shall be inherently safe by design and construction,
- where the above cannot be achieved, additional protective measures in relation to hazards shall be specified;
- if there are any risks not reduced to a tolerable level by the above means, it shall be specified that users need to be informed of such risks. If there is need for any training or for the use of any personal protective equipment to reduce risks to a tolerable level, it shall be specified that users need to be informed of this.

5.2.2 A product safety publication shall not be confined to electrical safety but shall cover all safety aspects of the products within its scope. It shall also take account of the environmental conditions in which the product is intended to be used and of the level of knowledge of expected users.

NOTE Annex A of this Guide contains a list of safety aspects relating to electrical equipment.

5.2.3 Safety aspects and performance aspects should not be covered in the same publication, as this makes it difficult to assess conformity with safety requirements alone. If, exceptionally, there are reasons to cover them in the same publication, safety aspects and performance aspects shall be clearly distinguished from each other. If there are performance criteria which have safety implications, these are considered to be safety aspects and this shall be made clear in the publication.

5.2.4 A product safety publication shall not include requirements which unnecessarily restrict design or construction, or impede technical progress and development.

5.2.5 A product safety publication shall include all requirements necessary to reduce risks, both in normal condition and in single fault condition, together with methods for checking conformity.

The simultaneous occurrence of two independent and unrelated faults need not normally be taken into account, because the likelihood of such an event is so low that the risk is generally at a tolerable level. If a single fault condition results unavoidably in one or more other fault conditions, all are considered as one single fault condition.

Some means of protection may be enhanced (e.g. reinforced) such that the technical committees developing standards may consider a single fault condition of such protection unlikely.

The single fault criterion is used extensively in relation to hardware failures in the field of electrical safety to provide protection against electric shock. However, in the field of "functional safety" criteria have to be developed for both random hardware failures and systematic