

INTERNATIONAL STANDARD

NORME INTERNATIONALE



**Electricity metering equipment – General requirements, tests and test conditions –
Part 31: Product safety requirements and tests**

**Équipement de comptage de l'électricité – Exigences générales, essais et conditions d'essai –
Partie 31: Exigences et essais sur la sécurité de produit**

<https://standards.iteh.ai/catalog/standards/iec/7f7bd780-7d72-4c30-97b0-6ad627a3aa9d/iec-62052-31-2024>



THIS PUBLICATION IS COPYRIGHT PROTECTED
Copyright © 2024 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.

Droits de reproduction réservés. Sauf indication contraire, aucune partie de cette publication ne peut être reproduite ni utilisée sous quelque forme que ce soit et par aucun procédé, électronique ou mécanique, y compris la photocopie et les microfilms, sans l'accord écrit de l'IEC ou du Comité national de l'IEC du pays du demandeur. Si vous avez des questions sur le copyright de l'IEC ou si vous désirez obtenir des droits supplémentaires sur cette publication, utilisez les coordonnées ci-après ou contactez le Comité national de l'IEC de votre pays de résidence.

IEC Secretariat
3, rue de Varembe
CH-1211 Geneva 20
Switzerland

Tel.: +41 22 919 02 11
info@iec.ch
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 corrigendum or an amendment might have been published.

IEC publications search - webstore.iec.ch/advsearchform

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 It also gives information on projects, replaced and withdrawn publications.

IEC Just Published - webstore.iec.ch/justpublished

Stay up to date on all new IEC publications. Just Published details all new publications released. Available online and once a month by email.

IEC Customer Service Centre - webstore.iec.ch/csc

If you wish to give us your feedback on this publication or need further assistance, please contact the Customer Service Centre: sales@iec.ch.

IEC Products & Services Portal - products.iec.ch

Discover our powerful search engine and read freely all the publications previews, graphical symbols and the glossary. With a subscription you will always have access to up to date content tailored to your needs.

Electropedia - www.electropedia.org

The world's leading online dictionary on electrotechnology, containing more than 22 500 terminological entries in English and French, with equivalent terms in 25 additional languages. Also known as the International Electrotechnical Vocabulary (IEV) online.

A propos de l'IEC

La Commission Electrotechnique Internationale (IEC) est la première organisation mondiale qui élabore et publie des Normes internationales pour tout ce qui a trait à l'électricité, à l'électronique et aux technologies apparentées.

A propos des publications IEC

Le contenu technique des publications IEC est constamment revu. Veuillez vous assurer que vous possédez l'édition la plus récente, un corrigendum ou amendement peut avoir été publié.

Recherche de publications IEC -

webstore.iec.ch/advsearchform

La recherche avancée permet de trouver des publications IEC en utilisant différents critères (numéro de référence, texte, comité d'études, ...). Elle donne aussi des informations sur les projets et les publications remplacées ou retirées.

IEC Just Published - webstore.iec.ch/justpublished

Restez informé sur les nouvelles publications IEC. Just Published détaille les nouvelles publications parues. Disponible en ligne et une fois par mois par email.

Service Clients - webstore.iec.ch/csc

Si vous désirez nous donner des commentaires sur cette publication ou si vous avez des questions contactez-nous: sales@iec.ch.

IEC Products & Services Portal - products.iec.ch

Découvrez notre puissant moteur de recherche et consultez gratuitement tous les aperçus des publications, symboles graphiques et le glossaire. Avec un abonnement, vous aurez toujours accès à un contenu à jour adapté à vos besoins.

Electropedia - www.electropedia.org

Le premier dictionnaire d'électrotechnologie en ligne au monde, avec plus de 22 500 articles terminologiques en anglais et en français, ainsi que les termes équivalents dans 25 langues additionnelles. Egalement appelé Vocabulaire Electrotechnique International (IEV) en ligne.

INTERNATIONAL STANDARD

NORME INTERNATIONALE



**Electricity metering equipment – General requirements, tests and test conditions –
Part 31: Product safety requirements and tests**

**Équipement de comptage de l'électricité – Exigences générales, essais et conditions d'essai –
Partie 31: Exigences et essais sur la sécurité de produit**

<https://standards.iteh.ai/catalog/standards/iec/7f7bd780-7d72-4c30-97b0-6ad627a3aa9d/iec-62052-31-2024>

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

COMMISSION
ELECTROTECHNIQUE
INTERNATIONALE

ICS 19.080, 91.140.50

ISBN 978-2-8322-9302-7

**Warning! Make sure that you obtained this publication from an authorized distributor.
Attention! Veuillez vous assurer que vous avez obtenu cette publication via un distributeur agréé.**

CONTENTS

FOREWORD.....	9
INTRODUCTION.....	12
1 Scope.....	13
1.1 General.....	13
1.2 Aspects included in scope.....	14
1.3 Aspects excluded from scope.....	15
1.4 Verification.....	15
1.5 Environmental conditions	15
1.5.1 Normal environmental conditions	15
1.5.2 Extended environmental conditions	16
1.5.3 Extreme environmental conditions	16
2 Normative references	17
3 Terms and definitions	19
3.1 Equipment and states of equipment	19
3.2 Parts, accessories, and functional elements.....	19
3.3 Quantities	25
3.4 Tests	28
3.5 Safety terms	28
3.6 Insulation.....	33
3.7 Terms related to switches of metering equipment.....	37
4 Tests.....	39
4.1 General.....	39
4.2 Type test – sequence of tests	40
4.3 Reference test conditions.....	40
4.3.1 Atmospheric conditions.....	40
4.3.2 State of the equipment.....	41
4.4 Testing in single fault condition.....	44
4.4.1 General	44
4.4.2 Application of fault conditions	44
4.4.3 Duration of tests	47
4.4.4 Conformity after application of fault conditions.....	47
5 Information and marking requirements.....	47
5.1 General.....	47
5.2 Labels, signs and signals	50
5.2.1 General	50
5.2.2 Durability of markings	53
5.3 Information for selection	53
5.3.1 General	53
5.3.2 General information	53
5.3.3 Information specific for meters.....	54
5.3.4 Information specific for stand-alone tariff and load control equipment	54
5.3.5 Information related to LCS.....	54
5.4 General information for installation and commissioning.....	55
5.4.1 General	55
5.4.2 Handling and mounting	55
5.4.3 Enclosure	55

5.4.4	Connections	56
5.4.5	Auxiliary power supply	58
5.4.6	Supply for external devices	58
5.4.7	Self-consumption	59
5.4.8	Commissioning	59
5.5	General information for use	59
5.5.1	General	59
5.5.2	Display, push buttons and other controls	59
5.5.3	Switches	60
5.5.4	Connection to user's equipment	60
5.6	General information for maintenance	60
5.6.1	Maintenance instructions	60
5.6.2	Cleaning	60
5.6.3	Batteries	60
6	Protection against electrical shock	61
6.1	General requirements	61
6.2	Determination of accessible parts	62
6.2.1	General	62
6.2.2	Examination	62
6.2.3	Openings above parts that are hazardous live	63
6.2.4	Openings for pre-set controls	63
6.2.5	Wiring terminals	63
6.3	Limit values for accessible parts	64
6.3.1	General	64
6.3.2	Levels in normal condition	64
6.3.3	Levels in single fault condition	65
6.4	Primary means of protection (protection against direct contact)	67
6.4.1	General	67
6.4.2	Equipment case	68
6.4.3	Basic insulation	68
6.4.4	Impedance	68
6.5	Additional means of protection in case of single fault conditions (protection against indirect contact)	68
6.5.1	General	68
6.5.2	Protective bonding	69
6.5.3	Supplementary insulation and reinforced insulation	72
6.5.4	Protective impedance	73
6.5.5	Automatic disconnection of the supply	73
6.5.6	Current- or voltage-limiting device	73
6.6	Connection to external circuits	74
6.6.1	General	74
6.6.2	Terminals for external circuits	74
6.6.3	Terminals for stranded conductors	74
6.7	Insulation requirements	75
6.7.1	General – electric stresses, overvoltages and working voltages	75
6.7.2	The nature of insulation	78
6.7.3	Insulation requirements for mains circuits	81
6.7.4	Insulation requirements for non-mains circuits	90

6.7.5	Insulation in circuits with special voltage values not addressed in 6.7.3 or 6.7.4.....	97
6.7.6	Reduction of transient overvoltages by the use of overvoltage limiting devices.....	104
6.7.7	Insulation requirements between circuits and parts.....	104
6.8	Constructional requirements for protection against electric shock.....	108
6.8.1	General.....	108
6.8.2	Insulating materials.....	108
6.8.3	Color coding.....	108
6.8.4	Equipment case.....	108
6.8.5	Terminal blocks.....	109
6.8.6	Insulating materials of SCS and LCS.....	109
6.8.7	Terminals.....	110
6.8.8	Requirements for current circuits.....	112
6.9	Safety related electrical tests.....	119
6.9.1	Overview.....	119
6.9.2	Test conditions.....	121
6.9.3	Dielectric test methods.....	123
6.9.4	Dielectric testing on complete equipment.....	126
6.9.5	Dielectric tests on sub-assemblies.....	132
6.9.6	Electrical tests on current circuits of directly connected meters without SCS.....	137
6.9.7	Electrical tests on current circuits of directly connected meters with SCS.....	137
6.9.8	Electrical tests on LCS.....	144
6.9.9	Cemented joints test.....	147
6.9.10	Thermal cycling.....	148
7	Protection against mechanical hazards.....	148
7.1	General.....	148
7.2	Sharp edges.....	148
7.3	Provisions for lifting and carrying.....	149
7.4	Wall mounting.....	149
8	Resistance to mechanical stresses.....	150
8.1	General.....	150
8.2	Spring hammer test.....	150
9	Protection against spread of fire.....	150
9.1	General.....	150
9.2	Eliminating or reducing the sources of ignition within the equipment.....	151
9.3	Containment of fire within the equipment, should it occur.....	151
9.3.1	General.....	151
9.3.2	Construction requirements.....	152
9.4	Limited-energy circuit.....	153
9.5	Overcurrent protection.....	154
10	Equipment temperature limits and resistance to heat.....	154
10.1	Surface temperature limits for protection against burns.....	154
10.2	Temperature limits for terminals.....	155
10.3	Temperatures of internal parts.....	156
10.4	Temperature test.....	158
10.5	Resistance to heat.....	159

10.5.1	Non-metallic enclosures	159
10.5.2	Insulating materials	160
11	Protection against penetration of dust and water	160
11.1	General.....	160
11.2	Test for protection against ingress of dust and foreign objects	161
11.3	Test for protection against ingress of water.....	161
12	Protection against liberated gases and substances explosion and implosion	162
12.1	Batteries and battery charging	162
12.1.1	Mounting of batteries	162
12.1.2	Battery circuits.....	162
12.1.3	Tests related to batteries and charging circuits	163
13	Components and sub-assemblies	164
13.1	General.....	164
13.2	Mains transformers tested outside equipment	165
13.3	Printed wiring boards	165
13.4	Components bridging insulation	166
13.5	Surge protective devices (SPDs, transient overvoltage limiting circuits)	166
13.5.1	General use of SPDs	166
13.5.2	SPD overheating test.....	167
13.6	Capacitors	167
14	Hazards resulting from application – Reasonably foreseeable misuse	168
15	Risk assessment	168
Annex A (normative)	Measuring circuits for touch current	169
A.1	Measuring circuit for AC with frequencies up to 1 MHz and for DC.....	169
A.2	Measuring circuits for sinusoidal AC with frequencies up to 100 Hz and for DC	170
A.3	Current measuring circuit for electrical burns at high frequencies.....	170
A.4	Current measuring circuit for wet location	171
Annex B (informative)	Examples for insulation between parts	173
B.1	General.....	173
B.2	Example of a meter protected by reinforced insulation	173
B.3	Example of a meter protected by double insulation	175
Annex C (informative)	Examples for directly connected meters equipped with SCS and LCS	177
Annex D (normative)	Test circuit diagram for the test of long-term overvoltage withstand	179
Annex E (normative)	Test circuit diagram for short current test on the current circuit of directly connected meters	180
Annex F (informative)	Examples of voltage tests	182
F.1	General.....	182
F.2	Example of a directly connected meter with SCS	182
F.3	Example of a transformer operated meter with auxiliary power supply.....	186
F.4	Example of an LPCT-operated meter with direct voltage connections.....	191
Annex G (normative)	Additional AC voltage tests for electromechanical meters	196
Annex H (normative)	Test equipment for cable flexion and pull test	197
Annex I (normative)	Routine tests	199
I.1	General.....	199
I.2	Protective earth	199

I.3	High-voltage test for mains circuits	199
I.4	Mains circuits with voltage-limiting devices	200
Annex J (informative)	Examples of battery protection.....	201
Annex K (informative)	Transient overvoltage requirements in TC 13 standards	202
Annex L (informative)	Electricity meters in LVDC systems	203
Annex M (informative)	Component standards.....	205
Bibliography	206
Figure 1	– Measurements through openings in enclosures	63
Figure 2	– Capacitance level versus voltage in normal condition and single fault condition (see 6.3.2c) and 6.3.3c).....	66
Figure 3	– Maximum duration of short-term accessible voltages in single fault condition (see 6.3.3a)	67
Figure 4	– Acceptable arrangements of protection means against electric shock.....	69
Figure 5	– Examples of binding screw assemblies	71
Figure 6	– Distance between conductors on an interface between two layers.....	88
Figure 7	– Distance between adjacent conductors along an interface of an inner layer	88
Figure 8	– Distance between adjacent conductors located between the same two layers.....	90
Figure 9	– Example of recurring peak voltage	102
Figure 10	– Flowchart of safety related electrical tests – part 1	120
Figure 11	– Flowchart of safety related electrical tests – part 2	121
Figure 12	– Flowchart to explain the requirements for protection against the spread of fire	151
Figure 13	– Flowchart for conformity options 13.1 a), b), c) and d).....	165
Figure A.1	– Measuring circuit for AC with frequencies up to 1 MHz and for DC	169
Figure A.2	– Measuring circuits for sinusoidal AC with frequencies up to 100 Hz and for DC	170
Figure A.3	– Current measuring circuit for electrical burns	171
Figure A.4	– Current measuring circuit for wet location	172
Figure B.1	– Insulation between parts – example of a meter protected by reinforced insulation	174
Figure B.2	– Insulation between parts – example of a meter protected by double insulation	175
Figure C.1	– Single phase two wire meter with UC2 SCS and 25A LCS	177
Figure C.2	– Three phase four wire meter with UC2 SCS and 2A ACS	178
Figure D.1	– Circuit for three-phase four-wire meters to simulate long term overvoltage, voltage moved to L3.....	179
Figure D.2	– Voltages at the meter under test.....	179
Figure E.1	– Test circuit for verification of short-time withstand current test on current circuits with and without SCS (meter example is with SCS).....	180
Figure E.2	– Example of short-circuit carrying test record in the case of a single-pole equipment on single-phase AC	181
Figure F.1	– Example terminal arrangement of a directly connected meter with SCS	182
Figure F.2	– Example terminal arrangement of a transformer operated meter with auxiliary power supply	186
Figure F.3	– Example terminal arrangement of a LPCT-operated meter with direct voltage connections	191

Figure H.1 – Test equipment for cable flexion and pull test (see 6.8.7.3)	197
Figure J.1 – Non-rechargeable battery protection.....	201
Figure J.2 – Rechargeable battery protection.....	201
Figure L.1 – Unipolar, balanced and bipolar DC systems	203
Table 1 – Test copper conductors for current and switch terminals	43
Table 2 – Information requirements.....	48
Table 3 – IEC 60417-DB-12M and ISO 7000:2019 symbols that may be used on metering equipment	52
Table 4 – Tightening torque for binding screw assemblies	72
Table 5 – Multiplication factors for clearance for altitudes up to 5 000 m.....	78
Table 6 – Overview of clauses specifying requirements for insulations.....	81
Table 7 – Nominal / rated voltages and rated impulse voltages	82
Table 8 – Clearances for mains circuits	84
Table 9 – Creepage distances for mains circuits	85
Table 10 – Test voltages for solid insulation in mains circuits	86
Table 11 – Test voltages for testing long-term stress of solid insulation in mains circuits	87
Table 12 – Minimum values for distance or thickness of solid insulation in mains circuits.....	89
Table 13 – Clearances and test voltages for non-mains circuits derived from mains circuits of overvoltage category III	92
Table 14 – Creepage distances for non-mains circuits and functional insulation.....	94
Table 15 – Minimum values for distance or thickness (see 6.7.4.4.2 to 6.7.4.4.4)	96
Table 16 – Clearance values for the calculation of 6.7.5.2	99
Table 17 – Test voltages based on clearances.....	100
Table 18 – Clearances for basic insulation in circuits having recurring peak voltages	103
Table 19 – Isolation classes for non-mains circuits	105
Table 20 – Insulation requirements between circuits	106
Table 21 – Summary of requirements for current circuits of directly connected meters without SCS.....	115
Table 22 – Summary of requirements for current circuits of directly connected meters with SCS.....	116
Table 23 – Summary of requirements for LCS.....	118
Table 24 – Correction factors according to test site altitude for test voltages for clearances	122
Table 25 – AC voltage test.....	130
Table 26 – DC voltage test.....	131
Table 27 – Voltage tests for verification of clearance in mains circuits	133
Table 28 – Voltage tests for verification of clearance in non-mains circuits	133
DC test voltages equal to the AC test voltages from Table 13	133
Table 29 – Voltage tests for verification of clearance in circuits with special voltage values.....	134
Table 30 – Voltage tests for verification of solid insulation in mains circuits	135
Table 31 – Voltage tests for verification of solid insulation in non-mains circuits	136
Table 32 – Voltage tests for verification of solid insulation in circuits with special voltage values.....	136

Table 33 – Test sequence and sample plan for SCS	138
Table 34 – Power factor ranges of the test circuit	141
Table 35 – Test sequence and sample plan for LCS	144
Table 36 – Limits for power sources without an overcurrent protective device	153
Table 37 – Limits for power sources with an overcurrent protection device	154
Table 38 – Surface temperature limits in normal condition	155
Table 39 – Temperature limits for terminals	156
Table 40 – Maximum measured temperatures for internal materials and components	157
Table F.1 – Application of impulse test voltages according to 6.9.4.4	183
Table F.2 – Application of AC power frequency test voltages according to 6.9.4.5 or DC test voltages according to 6.9.4.6	183
Table F.3 – Application of AC long-term overvoltage test voltages according to 6.9.4.3.2	184
Table F.4 – Application of surge test voltages according to 6.9.4.7	185
Table F.5 – Application of impulse test voltages according to 6.9.4.4	187
Table F.6 – Application of AC power frequency test voltages according to 6.9.4.5 or DC test voltages according to 6.9.4.6	188
Table F.7 – Application of AC long-term overvoltage test voltages according to 6.9.4.3.2	189
Table F.8 – Application of surge test voltages according to 6.9.4.7	190
Table F.9 – Application of impulse test voltages according to 6.9.4.4	192
Table F.10 – Application of AC power frequency test voltages according to 6.9.4.5 or DC test voltages according to 6.9.4.6	193
Table F.11 – Application of AC long-term overvoltage test voltages according to 6.9.4.3.2	194
Table F.12 – Application of surge test voltages according to 6.9.4.7	195
Table G.1 – AC voltage tests of electromechanical meters	196
Table H.1 – Test values for flexion and pull-out tests for round copper conductors	198
Table L.1 – Voltage between lines (unipolar systems) or line and midpoint (bipolar systems) for installation domain	204
Table L.2 – Voltage between lines (unipolar systems) or line and midpoint (bipolar systems) for distribution domain	204

INTERNATIONAL ELECTROTECHNICAL COMMISSION

**ELECTRICITY METERING EQUIPMENT –
GENERAL REQUIREMENTS, TESTS AND TEST CONDITIONS –****Part 31: Product safety requirements and tests**

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) IEC draws attention to the possibility that the implementation of this document may involve the use of (a) patent(s). IEC takes no position concerning the evidence, validity or applicability of any claimed patent rights in respect thereof. As of the date of publication of this document, IEC had not received notice of (a) patent(s), which may be required to implement this document. However, implementers are cautioned that this may not represent the latest information, which may be obtained from the patent database available at <https://patents.iec.ch>. IEC shall not be held responsible for identifying any or all such patent rights.

IEC 62052-31 has been prepared by IEC technical committee 13: Electrical energy measurement and control. It is an International Standard.

This second edition cancels and replaces the first edition published in 2015. This edition constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition:

- a) Title modified (removed "AC");
- b) Scope modified: Extended scope to 1 000 V AC and 1 500 V DC including DC meters. This has led to many changes in various clauses, in particular in Clause 6; Included transducer-operated meters or meters designed for operation with Low Power Instrument Transformers (LPIT) or sensors; Aligned environmental conditions with those of IEC 62052-11:2020, 1.5.2;
- c) Tests: Several clarifications added;
- d) Information and marking requirements: Table 2 aligned widely with IEC 62052-11:2020; Requirements for batteries added;
- e) Protection against electrical shock: Multiple modifications done in different; Clause 6 re-numbered and re-organized; Requirements for touch currents clarified (6.3.1); Specified, in which cases OVC II (resp. CAT II) and OVC IV (resp. CAT IV) requirements shall be applied (6.7.1.3); Added requirements for working voltages (6.7.1.5) and cemented joints (6.7.2.4.2); Table 7 updated and extended; Flowcharts for electrical tests (Figure 10 and Figure 11) and related test procedures updated;
- f) Protection against spread of fire: Requirements for limited energy circuits updated (9.4);
- g) Equipment temperature limits and resistance to heat: Table 40 modified to include additional insulation classes;
- h) Protection against liberated gases and substances explosion and implosion: Requirements for batteries updated;
- i) Components and sub-assemblies Requirements for surge protective devices (13.5);
- j) Annex B revised;
- k) Annex F revised and new examples added;
- l) Annex K revised (see related changes in 6.7.1.3);
- m) Annex L: Removed Annex L "Overview of Safety Aspects Covered", added new Annex L "Electricity Meters in LVDC Systems";
- n) Annex M: Removed Annex M "Index of Defined Terms" and added new Annex M "Component Standards";
- o) General alignment with IEC 61010-1 AMD2 Ed.3 (CDV in preparation) done where possible, however this standard is still in development;
- p) Temperature and humidity ranges (1.5.1 and 1.5.2) revised.

The text of this International Standard is based on the following documents:

Draft	Report on voting
13/1923/FDIS	13/1926/RVD

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

The language used for the development of this International Standard is English.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at www.iec.ch/members_experts/refdocs. The main document types developed by IEC are described in greater detail at www.iec.ch/publications.

A list of all parts of IEC 62052 series, under the general title *Electricity metering equipment – General requirements, tests and test conditions*, can be found on the IEC website.

Future documents in this series will carry the new general title as cited above. Titles of existing documents in this series will be updated at the time of the next edition.

In this document, the following print types are used:

- requirements and definitions: in roman type;
- NOTES: in smaller roman type;
- *conformity and tests: in italic type.*

The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under webstore.iec.ch in the data related to the specific document. At this date, the document will be

- reconfirmed,
- withdrawn, or
- revised.

IMPORTANT – The "colour inside" logo on the cover page of this document 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.

Itih Standards
(<https://standards.itih.ai>)
Document Preview

[IEC 62052-31:2024](https://standards.itih.ai/catalog/standards/iec/7f7bd780-7d72-4c30-97b0-6ad627a3aa9d/iec-62052-31-2024)

<https://standards.itih.ai/catalog/standards/iec/7f7bd780-7d72-4c30-97b0-6ad627a3aa9d/iec-62052-31-2024>

INTRODUCTION

The IEC addresses safety aspects by establishing *basic*, *group* and *product* safety publications.

A *basic safety publication* covers a specific safety-related matter, applicable to many electrotechnical products. It 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 basic safety publications will not apply unless specifically referred to or included in the relevant publications.

A *group safety publication* covers all safety aspects of a specific group of products within the scope of two or more product technical committees (TCs). 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.

A *product safety publication* covers all safety aspects of one or more products within the scope of a single product TC.

The objectives of the development of this document are the following:

- to specifically reference and include relevant requirements, test methods or test conditions of relevant basic safety publications so that they become applicable;
- to specifically reference and include – where appropriate, in a modified form – relevant requirements, test methods or test conditions of relevant group safety publications;
- to consider the latest developments in the technology used for the design and manufacture of equipment for electrical energy measurement and control;
- to achieve a uniform approach to product safety throughout the international metering industry.

This *product safety standard* is based on, among others, the following:

- the *basic safety standard* IEC 60664-1:2020, established by TC 109;
- standards from the IEC 60364 series related to electrical installations of buildings, established by TC 64;
- the *group safety standard* IEC 61010-1:2016 established by TC 66;
- the *group safety standard* IEC 62477-1:2022 established by TC 22;
- IEC 60255-27:2023, a *product safety standard* for measuring relays and protection equipment, established by TC 95. These products are similar in their design and to some extent in their use in equipment for electrical energy measurement and control.

To facilitate the use of this document, an integral text has been prepared, with appropriate references to source documents.

Being a product safety standard, this document takes precedence over the group safety standards IEC 61010-1:2016 and IEC 62477-1:2022.