SVENSK STANDARD SS-EN 61243-3

Fastställd	Utgåva	Sida	Ansvarig kommitté
2015-03-11	3	1 (1+79)	SEK TK 78

Arbete med spänning – Spänningsprovare – Del 3: Tvåpoliga spänningsprovare för lågspänning

Live working – Voltage detectors – Part 3: Two-pole low-voltage type

Som svensk standard gäller europastandarden EN 61243-3:2014. Den svenska standarden innehåller den officiella engelska språkversionen av EN 61243-3:2014.

Nationellt förord

Europastandarden EN 61243-3:2014

består av:

– **europastandardens ikraftsättningsdokument,** utarbetat inom CENELEC
– **IEC 61243-3, Third edition, 2014**[*)] **- Live working - Voltage detectors - Part 3: Two-pole low-voltage type**

utarbetad inom International Electrotechnical Commission, IEC.

Tidigare fastställd svensk standard SS-EN 61243-3, utgåva 2, 2010, gäller ej fr o m 2017-11-13.

[*)] Corrigendum, January 2015 till IEC 61243-3:2014 är inarbetat i standarden.

ICS 13.260.00; 29.240.20; 29.260.99

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EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 61243-3

November 2014

ICS 13.260; 29.240.20; 29.260.99

Supersedes EN 61243-3:2010

English Version

Live working - Voltage detectors - Part 3: Two-pole low-voltage type (IEC 61243-3:2014)

Travaux sous tension - Détecteurs de tension - Partie 3: Type bipolaire basse tension (CEI 61243-3:2014)

Arbeiten unter Spannung - Spannungsprüfer - Teil 3: Zweipoliger Spannungsprüfer für Niederspannungsnetze (IEC 61243-3:2014)

This European Standard was approved by CENELEC on 2014-11-13. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CENELEC member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CENELEC member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Bulgaria, Croatia, Cyprus, the Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

Ref. No. EN 61243-3:2014 E

SEK Svensk Elstandard

Foreword

The text of document 78/1054/FDIS, future edition 3 of IEC 61243-3, prepared by IEC/TC 78 "Live working" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 61243-3:2014.

The following dates are fixed:

- latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2015-08-13
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2017-11-13

This document supersedes EN 61243-3:2010.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CENELEC [and/or CEN] shall not be held responsible for identifying any or all such patent rights.

This standard covers the Principle Elements of the Safety Objectives for Electrical Equipment Designed for Use within Certain Voltage Limits (LVD - 2006/95/EC).

Endorsement notice

The text of the International Standard IEC 61243-3:2014 was approved by CENELEC as a European Standard without any modification.

In the official version, for Bibliography, the following notes have to be added for the standards indicated:

IEC 60721-2-1:1982 & IEC 60721-2-1:1982/A1:1987	NOTE	Harmonized as HD 478.2.1 S1:1989 (not modified).
IEC 60743:2013	NOTE	Harmonized as EN 60743:2013 (not modified).
ISO 9000:2005	NOTE	Harmonized as EN ISO 9000:2005 (not modified).

Annex ZA
(normative)

Normative references to international publications with their corresponding European publications

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

NOTE 1 When an International Publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

NOTE 2 Up-to-date information on the latest versions of the European Standards listed in this annex is available here: www.cenelec.eu.

Publication	Year	Title	EN/HD	Year
IEC 60068-2-6	-	Environmental testing - Part 2-6: Tests - Test Fc: Vibration (sinusoidal)	EN 60068-2-6	-
IEC 60068-2-31	-	Environmental testing - Part 2-31: Tests - Test Ec: Rough handling shocks, primarily for equipment-type specimens	EN 60068-2-31	-
IEC 60068-2-75	1997	Environmental testing - Part 2-75: Tests - Test Eh: Hammer tests	EN 60068-2-75	1997
IEC 60112	-	Method for the determination of the proof and the comparative tracking indices of solid insulating materials	EN 60112	-
IEC 60304	-	Standard colours for insulation for low-frequency cables and wires	HD 402 S2	-
IEC 60417	-	Graphical symbols for use on equipment	-	-
IEC/TS 60479-1	2005	Effects of current on human beings and livestock - Part 1: General aspects	-	-
IEC 60529 - + A1 + A2	1989 - 1999 2013	Degrees of protection provided by enclosures (IP Code)	EN 60529 + corrigendum May + A1 + A2	1991 1993 2000 2013
IEC 60664-1	2007	Insulation coordination for equipment within low-voltage systems - Part 1: Principles, requirements and tests	EN 60664-1	2007
IEC 60664-3	-	Insulation coordination for equipment within low-voltage systems - Part 3: Use of coating, potting or moulding for protection against pollution	EN 60664-3	-

Publication	Year	Title	EN/HD	Year
IEC 60695-10-2	2003	Fire hazard testing - Part 10-2: Abnormal heat - Ball pressure test	EN 60695-10-2	2003
IEC 60942	-	Electroacoustics - Sound calibrators	EN 60942	-
IEC 61010-1 -	2001 [1)] -	Safety requirements for electrical equipment for measurement, control, and laboratory use - Part 1: General requirements	EN 61010-1 + corrigendum Jun.	2001 [2)] 2002
IEC 61010-031 + A1	2002 2008	Safety requirements for electrical equipment for measurement, control and laboratory use - Part 031: Safety requirements for hand-held probe assemblies for electrical measurement and test	EN 61010-031 + A1	2002 2008
IEC 61140 + A1 (mod)	2001 2004	Protection against electric shock - Common aspects for installation and equipment	EN 61140 + A1	2002 2006
IEC 61180-1	-	High-voltage test techniques for low-voltage equipment - Part 1: Definitions, test and procedure requirements	EN 61180-1	-
IEC 61180-2	-	High-voltage test techniques for low-voltage equipment - Part 2: Test equipment	EN 61180-2	-
IEC 61260	-	Electroacoustics - Octave-band and fractional-octave-band filters	EN 61260	-
IEC 61318	-	Live working - Conformity assessment applicable to tools, devices and equipment	EN 61318	-
IEC 61326-1	2005	Electrical equipment for measurement, control and laboratory use - EMC requirements - Part 1: General requirements	EN 61326-1	2006
IEC 61477	-	Live working - Minimum requirements for the utilization of tools, devices and equipment	EN 61477	-
IEC 61557-7	2007	Electrical safety in low voltage distribution systems up to 1 000 V a.c. and 1 500 V d.c. - Equipment for testing, measuring or monitoring of protective measures - Part 7: Phase sequence	EN 61557-7	2007
IEC 61672-1	-	Electroacoustics - Sound level meters - Part 1: Specifications	EN 61672-1	-

1) Superseded by IEC 61010-1:2010.

2) Superseded by EN 61010-1:2010 (IEC 61010-1:2010).

Publication	Year	Title	EN/HD	Year
ISO 286-1	-	Geometrical product specifications (GPS) - ISO code system for tolerances on linear sizes - Part 1: Basis of tolerances, deviations and fits	EN ISO 286-1	-
ISO 286-2	-	Geometrical product specifications (GPS) - ISO code system for tolerances on linear sizes - Part 2: Tables of standard tolerance classes and limit deviations for holes and shafts	EN ISO 286-2	-
ISO 354	-	Acoustics - Measurement of sound absorption in a reverberation room	EN ISO 354	-
ISO 3744	1994 [3)]	Acoustics - Determination of sound power levels of noise sources using sound pressure - Engineering method in an essentially free field over a reflecting plane	EN ISO 3744	2009 [4)]
ISO 3745	-	Acoustics - Determination of sound power levels and sound energy levels of noise sources using sound pressure - Precision methods for anechoic rooms and hemi-anechoic rooms	EN ISO 3745	-
ISO 7000	-	Graphical symbols for use on equipment - Registered symbols	-	-

3) Superseded by ISO 3744:2010.

4) Superseded by EN ISO 3744:2010 (ISO 3744:2010).

CONTENTS

INTERNATIONAL ELECTROTECHNICAL COMMISSION

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LIVE WORKING – VOLTAGE DETECTORS –

Part 3: Two-pole low-voltage type

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.
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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.
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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.

International Standard IEC 61243-3 has been prepared by IEC technical committee 78: Live working.

This third edition cancels and replaces the second edition published in 2009. It is a technical revision.

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

– requirement and test to manage *interference voltages* at power frequencies;
– informative annex on *voltage detectors* and the presence of *interference voltages*.

The text of this standard is based on the following documents:

FDIS	Report on voting
78/1054/FDIS	78/1090/RVD

Full information on the voting for the approval of this standard 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.

Terms defined in Clause 3 are given in italic print throughout this standard.

A list of all parts of the IEC 61243 series can be found, under the general title *Live working – Voltage detectors*, on the IEC website.

The committee has decided that the contents of this publication will remain unchanged until the stability date indicated on the IEC web site under "http://webstore.iec.ch" in the data related to the specific publication. At this date, the publication will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

The contents of the corrigendum of January 2015 have been included in this copy.

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 publication using a colour printer.

INTRODUCTION

The devices covered by this standard are designed to be used in a live working environment to determine the status (presence or absence of operating voltage) of low-voltage installations.

The live working environment comes with its specific hazards and working conditions, which are generally more severe than the ones encountered by workers in other fields than live working.

This International Standard is a product standard giving essential requirements and tests to verify that the devices perform well and will contribute to the safety of the users, provided they are used by skilled persons, and according to safe working procedures and to local or national regulations.

Voltage detectors are not considered as measuring or testing devices, separately covered by IEC 61010 series. However, in case of misuse by general electrical workers, the requirements and tests included in this document are intended to achieve an equivalent level of safety.

To take into consideration the specific needs of a live working environment, the following differences exist with IEC 61010 series:

– some requirements and tests exist in both standards but with different sanctions or pass test criteria (see A.1);
– some requirements of IEC 61010 are not included in this standard (see A.2, with rationale);
– some additional requirements of this standard are not specified in IEC 61010 with the rationale (see A.3).

This International Standard has been prepared according to the requirements of IEC 61477, where applicable.

The product covered by this standard may have an impact on the environment during some or all stages of its life cycle. These impacts can range from slight to significant, be of short-term or long-term effect, and occur at the global, regional or local level.

This standard does not include requirements and test provisions for the manufacturers of the product, or recommendations to the users of the product for environmental improvement. However, all parties intervening in its design, manufacture, packaging, distribution, use, maintenance, repair, reuse, recovery and disposal are invited to take account of environmental considerations.

LIVE WORKING – VOLTAGE DETECTORS –

Part 3: Two-pole low-voltage type

1 Scope

This part of IEC 61243 is applicable to hand-held *two-pole voltage detector*s with their accessories (crocodile clips and detachable *lead*s) to be used in contact with parts of electrical systems:

– for a.c. voltages not exceeding 1 000 V at nominal frequencies between $16\ 2/3$ Hz and up to 500 Hz,

and/or

– for d.c. voltages not exceeding 1 500 V.

NOTE The a.c. voltages defined in this standard refer either to phase-to-phase voltages or phase to neutral voltages.

Contact electrode extensions are not covered by this standard.

Voltage detectors covered by this standard are intended to be used under dry and humid conditions, both indoor and outdoor. They are not intended to be used under rain conditions.

Voltage detectors covered by this standard are not intended to be used for continuous operation.

Voltage detectors covered by this standard are intended to be used up to 2 000 m above sea level.

This standard also includes provisions for the following supplementary functions when available (see Annex B):

– phase indication,
– rotating field indication, and
– continuity check.

Other supplementary functions are not covered by this standard.

Voltage detectors covered by this standard are not considered as measuring devices. Relevant safety requirements for measuring devices are included in IEC 61010 series.

2 Normative references

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

IEC 60068-2-6, *Environmental testing – Part 2-6: Tests – Test Fc: Vibration (sinusoidal)*

IEC 60068-2-31, *Environmental testing – Part 2-31: Tests – Test Ec: Rough handling shocks, primarily for equipment-type specimens*

IEC 60068-2-75:1997, *Environmental testing – Part 2-75: Tests – Test Eh: Hammer tests*

IEC 60112, *Method for the determination of the proof and the comparative tracking indices of solid insulating materials*

IEC 60304, *Standard colours for insulation for low-frequency cables and wires*

IEC 60417, *Graphical symbols for use on equipment.* Available from: http://www.graphical-symbols.info/equipment

IEC TS 60479-1:2005, *Effects of current on human beings and livestock – Part 1: General aspects*

IEC 60529:1989, *Degrees of protection provided by enclosures (IP Code)*
IEC 60529:1989/AMD1:1999
IEC 60529:1989/AMD2:2013[1]

IEC 60664-1:2007, *Insulation coordination for equipment within low-voltage systems – Part 1: Principles, requirements and tests*

IEC 60664-3, *Insulation coordination for equipment within low-voltage systems – Part 3: Use of coating, potting or moulding for protection against pollution*

IEC 60695-10-2:2003, *Fire hazard testing – Part 10-2: Abnormal heat – Ball pressure test method*

IEC 60942, *Electroacoustics – Sound calibrators*

IEC 61010-031:2002, *Safety requirements for electrical equipment for measurement, control and laboratory use – Part 031: Safety requirements for hand-held probe assemblies for electrical measurement and test*
IEC 61010-031:2002/AMD1:2008[2]

IEC 61010-1:2001[3], *Safety requirements for electrical equipment for measurement, control, and laboratory use – Part 1: General requirements*

IEC 61140:2001, *Protection against electric shock – Common aspects for installation and equipment*
Amendment 1:2004

IEC 61180-1, *High-voltage test techniques for low-voltage equipment – Part 1: Definitions, test and procedure requirements*

IEC 61180-2, *High-voltage test techniques for low-voltage equipment – Part 2: Test equipment*

IEC 61260, *Electroacoustics – Octave-band and fractional-octave-band filters*

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1 There exists a consolidated edition 2.2 (2013) that includes IEC 60529:1989 and its Amendments 1 and 2.

2 There exists a consolidated edition 1.1 (2008) that includes IEC 61010-031:2002 and its Amendment 1.

3 Second edition, replaced by a third edition in 2010.

IEC 61318, *Live working – Conformity assessment applicable to tools, devices and equipment*

IEC 61326-1:2005, *Electrical equipment for measurement, control and laboratory use – EMC requirements – Part 1: General requirements*

IEC 61477, *Live working – Minimum requirements for the utilization of tools, devices and equipment*

IEC 61557-7:2007, *Electrical safety in low voltage distribution systems up to 1 000 V a.c. and 1 500 V d.c. – Equipment for testing, measuring or monitoring of protective measures – Part 7: Phase sequence*

IEC 61672-1, *Electroacoustics – Sound level meters – Part 1: Specifications*

ISO 286-1, *Geometrical product specifications (GPS) – ISO code system for tolerances on linear sizes – Part 1: Bases of tolerances, deviations and fits*

ISO 286-2, *Geometrical product specifications (GPS) – ISO code system for tolerances on linear sizes – Part 2: Tables of standard tolerance classes and limit deviations for holes and shafts*

ISO 354, *Acoustics – Measurement of sound absorption in a reverberation room*

ISO 3744:1994[4], *Acoustics – Determination of sound power levels of noise sources using sound pressure – Engineering method in an essentially free field over a reflecting plane*

ISO 3745, *Acoustics – Determination of sound power levels and sound energy levels of noise sources using sound pressure – Precision methods for anechoic rooms and hemi-anechoic rooms*

ISO 7000, *Graphical symbols for use on equipment – Registered symbols. Available at:* http://www.graphical-symbols.info/equipment

4 Second edition, replaced by a third edition in 2010.