SVENSK STANDARD

SS-EN IEC 61557-16, utg 2:2025

Fastställd	Sida	Ansvarig kommitté
2025-07-02	1 (25)	SEK TK 85

Elsäkerhet i elinstallationer för lågspänning – Utrustning för provning, mätning och övervakning av skyddsåtgärder – Del 16: Utrustning för att prova funktionen hos skyddsåtgärder i elutrustning och elektrisk utrustning för medicinskt bruk

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 16: Equipment for testing the effectiveness of the protective measures of electrical equipment and/or medical electrical equipment

Som svensk standard gäller europastandarden EN IEC 61557-16:2024. Den svenska standarden innehåller den officiella engelska språkversionen av EN IEC 61557-16:2024.

Nationellt förord

Europastandarden EN IEC 61557-16:2024

består av:

– **europastandardens ikraftsättningsdokument,** utarbetat inom CENELEC
– **IEC 61557-16, Second edition, 2023 - 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 16: Equipment for testing the effectiveness of the protective measures of electrical equipment and/or medical electrical equipment**

utarbetad inom International Electrotechnical Commission, IEC.

Standarden ska användas tillsammans med SS-EN IEC 61557-1, utg 3:2022.

Tidigare fastställd svensk standard SS-EN 61557-16, utg 1:2015 med eventuella tillägg, ändringar och rättelser gäller ej fr o m 2027-12-31.

ICS 17.220.20; 29.080.01

Denna standard är fastställd av SEK Svensk Elstandard,
som också kan lämna upplysningar om **sakinnehållet** i standarden.
Postadress: Box 1042, 172 21 Sundbyberg
Telefon: 08 - 444 14 00.
E-post: sek@elstandard.se. Internet: elstandard.se

Standarder underlättar utvecklingen och höjer elsäkerheten

Det finns många fördelar med att ha gemensamma tekniska regler för bl a mätning, säkerhet och provning och för utförande, skötsel och dokumentation av elprodukter och elanläggningar.

Genom att utforma sådana standarder blir säkerhetsfordringar tydliga och utvecklingskostnaderna rimliga samtidigt som marknadens acceptans för produkten eller tjänsten ökar.

Många standarder inom elområdet beskriver tekniska lösningar och metoder som åstadkommer den elsäkerhet som föreskrivs av svenska myndigheter och av EU.

SEK är Sveriges röst i standardiseringsarbetet inom elområdet

SEK Svensk Elstandard svarar för standardiseringen inom elområdet i Sverige och samordnar svensk medverkan i internationell och europeisk standardisering. SEK är en ideell organisation med frivilligt deltagande från svenska myndigheter, företag och organisationer som vill medverka till och påverka utformningen av tekniska regler inom elektrotekniken.

SEK samordnar svenska intressenters medverkan i SEKs tekniska kommittéer och stödjer svenska experters medverkan i internationella och europeiska projekt.

Stora delar av arbetet sker internationellt

Utformningen av standarder sker i allt väsentligt i internationellt och europeiskt samarbete. SEK är svensk nationalkommitté av International Electrotechnical Commission (IEC) och Comité Européen de Normalisation Electrotechnique (CENELEC).

Standardiseringsarbetet inom SEK är organiserat i referensgrupper bestående av ett antal tekniska kommittéer som speglar hur arbetet inom IEC och CENELEC är organiserat.

Arbetet i de tekniska kommittéerna är öppet för alla svenska organisationer, företag, institutioner, myndigheter och statliga verk. Den årliga avgiften för deltagandet och intäkter från försäljning finansierar SEKs standardiseringsverksamhet och medlemsavgift till IEC och CENELEC.

Var med och påverka!

Den som deltar i SEKs tekniska kommittéarbete har möjlighet att påverka framtida standarder och får tidig tillgång till information och dokumentation om utvecklingen inom sitt teknikområde. Arbetet och kontakterna med kollegor, kunder och konkurrenter kan gynnsamt påverka enskilda företags affärsutveckling och bidrar till deltagarnas egen kompetensutveckling.

Du som vill dra nytta av dessa möjligheter är välkommen att kontakta SEKs kansli för mer information.

SEK Svensk Elstandard

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EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN IEC 61557-16

December 2024

ICS 17.220.20; 29.080.01

Supersedes EN 61557-16:2015

English Version

Electrical safety in low voltage distribution systems up to 1 000 V AC and 1 500 V DC - Equipment for testing, measuring or monitoring of protective measures - Part 16: Equipment for testing the effectiveness of the protective measures of electrical equipment and/or medical electrical equipment (IEC 61557-16:2023)

Sécurité électrique dans les réseaux de distribution basse tension au plus égale à 1 000 V en courant alternatif et 1 500 V en courant continu - Dispositifs de contrôle, de mesure ou de surveillance de mesures de protection - Partie 16: Équipement pour les essais de bon fonctionnement des mesures de protection des appareils électriques et/ou des appareils électromédicaux (IEC 61557-16:2023)

Elektrische Sicherheit in Niederspannungsnetzen bis AC 1 000 V und DC 1 500 V - Geräte zum Prüfen, Messen oder Überwachen von Schutzmaßnahmen - Teil 16: Geräte zur Prüfung der Wirksamkeit der Schutzmaßnahmen von elektrischen Geräten und/oder medizinisch elektrischen Geräten (IEC 61557-16:2023)

This European Standard was approved by CENELEC on 2024-10-16. 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, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Türkiye and the United Kingdom.

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

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

Ref. No. EN IEC 61557-16:2024 E

SEK Svensk Elstandard

SS-EN IEC 61557-16, utg 2:2025

European foreword

The text of document 85/876/FDIS, future edition 2 of IEC 61557-16, prepared by TC 85 "Measuring equipment for electrical and electromagnetic quantities" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN IEC 61557-16:2024.

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) 2025-12-31
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2027-12-31

This document supersedes EN 61557-16:2015 and all of its amendments and corrigenda (if any).

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

This document is read in conjunction with EN IEC 61557-1:2021.

Any feedback and questions on this document should be directed to the users' national committee. A complete listing of these bodies can be found on the CENELEC website.

Endorsement notice

The text of the International Standard IEC 61557-16:2023 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 standard indicated:

IEC 60990	NOTE	Approved as EN 60990
IEC 61000-4-8	NOTE	Approved as EN 61000-4-8

Annex ZA
(normative)

Normative references to international publications with their corresponding European publications

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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.

NOTE 1 Where 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.cencenelec.eu.

Publication	Year	Title	EN/HD	Year
IEC 60529	-	Degrees of protection provided by enclosures (IP Code)	EN 60529	-
IEC 60601-1	2005	Medical electrical equipment - Part 1: General requirements for basic safety and essential performance	EN 60601-1	2006
-	-		+AC	2010
+ A1	2012		+ A1	2013
-	-		+ AC	2014
-	-		+ A12	2014
+ A2	2020		+ A2	2021
-	-		+ AC	2022
-	-		+ A13	2024
IEC 61010-1	2010	Safety requirements for electrical equipment for measurement, control, and laboratory use - Part 1: General requirements	EN 61010-1	2010
+ A1 (mod)	2016		+ A1	2019
-	-		+ AC	2019
IEC 61010-031	-	Safety requirements for electrical equipment for measurement, control, and laboratory use - Part 031: Safety requirements for hand-held and hand-manipulated probe assemblies for electrical test and measurement	EN IEC 61010-031	-
IEC 61010-2-030	-	Safety requirements for electrical equipment for measurement, control, and laboratory use - Part 2-030: Particular requirements for equipment having testing or measuring circuits	EN IEC 61010-2-030	-

Publication	Year	Title	EN/HD	Year
IEC 61010-2-032	-	Safety requirements for electrical equipment for measurement, control, and laboratory use - Part 2-032: Particular requirements for hand-held and hand-manipulated current sensors for electrical test and measurement	EN 61010-2-032	-
IEC 61010-2-034	-	Safety requirements for electrical equipment for measurement, control, and laboratory use - Part 2-034: Particular requirements for measurement equipment for insulation resistance and test equipment for electric strength	EN 61010-2-034	-
IEC 61557-1	2019	Electrical safety in low voltage distribution systems up to 1 000 V AC and 1 500 V DC - Equipment for testing, measuring or monitoring of protective measures - Part 1: General requirements	EN IEC 61557-1	2021
IEC 61557-2	-	Electrical safety in low voltage distribution systems up to 1 000 V AC and 1 500 V DC - Equipment for testing, measuring or monitoring of protective measures - Part 2: Insulation resistance	EN IEC 61557-2	-
IEC 61557-4	-	Electrical safety in low voltage distribution systems up to 1 000 V AC and 1 500 V DC - Equipment for testing, measuring or monitoring of protective measures - Part 4: Resistance of earth connection and equipotential bonding	EN IEC 61557-4	-
IEC 61557-10	-	Electrical safety in low voltage distribution systems up to 1 000 V AC and 1 500 V DC - Equipment for testing, measuring or monitoring of protective measures - Part 10: Combined measuring equipment	EN IEC 61557-10	-
IEC 61557-13	-	Electrical safety in low voltage distribution systems up to 1 000 V AC and 1 500 V DC - Equipment for testing, measuring or monitoring of protective measures - Part 13: Hand-held and hand-manipulated current clamps and sensors for measurement of leakage currents in electrical distribution systems	EN IEC 61557-13	-
IEC 62353	2014	Medical electrical equipment - Recurrent test and test after repair of medical electrical equipment	EN 62353	2014

IEC 61557-16

Edition 2.0 2023-08

INTERNATIONAL STANDARD

NORME INTERNATIONALE

Electrical safety in low voltage distribution systems up to 1 000 V AC and 1 500 V DC – Equipment for testing, measuring or monitoring of protective measures – Part 16: Equipment for testing the effectiveness of the protective measures of electrical equipment and/or medical electrical equipment

Sécurité électrique dans les réseaux de distribution basse tension au plus égale à 1 000 V en courant alternatif et 1 500 V en courant continu – Dispositifs de contrôle, de mesure ou de surveillance de mesures de protection – Partie 16: Équipement pour les essais de bon fonctionnement des mesures de protection des appareils électriques et/ou des appareils électromédicaux

INTERNATIONAL ELECTROTECHNICAL COMMISSION

COMMISSION ELECTROTECHNIQUE INTERNATIONALE

ICS 17.220.20, 29.080.01

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CONTENTS

INTERNATIONAL ELECTROTECHNICAL COMMISSION

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ELECTRICAL SAFETY IN LOW VOLTAGE DISTRIBUTION SYSTEMS UP TO 1 000 V AC AND 1 500 V DC – EQUIPMENT FOR TESTING, MEASURING OR MONITORING OF PROTECTIVE MEASURES –

Part 16: Equipment for testing the effectiveness of the protective measures of electrical equipment and/or medical electrical equipment

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.
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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.

IEC 61557-16 has been prepared by IEC technical committee 85: Measuring equipment for electrical and electromagnetic quantities. It is an International Standard.

This second edition cancels and replaces the first edition published in 2014. This edition constitutes a technical revision.

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

a) splitting of uncertainty requirements for medical and non-medical electrical equipment in 4.2.1;
b) addition of a definition of ranges with defined uncertainty in 4.2.1 to 4.2.7;
c) addition of an optional measuring device (MD) for non-medical devices in 4.2.1;

d) addition of a limitation of the maximum intrinsic uncertainty for medical applications at leakage current in 4.2.1;

e) change of 4.2.3 from test sockets to sockets for service purposes;

f) addition of a warning in the operating instructions;

g) integration of former 6.3 into 6.2;

h) update of Table 1;

i) alignment of the structure with that of the whole IEC 61557 series.

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

Draft	Report on voting
85/876/FDIS	85/885/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.

This International Standard is to be used in conjunction with IEC 61557-1:2019.

A list of all parts in the IEC 61557 series, published under the general title *Electrical safety in low voltage distribution systems up to 1 000 V AC and 1 500 V DC – Equipment for testing, measuring or monitoring of protective measures*, can be found on the IEC website.

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

INTRODUCTION

This part of IEC 61557 defines performance requirements of measuring equipment intended for testing the effectiveness of the protective measures of either electrical equipment or medical electrical equipment, or both (in accordance with IEC 62353). It is the intention of this document to achieve comparable measuring results, additional safety for the person carrying out the testing, and non-damaging electrical stress for the unit under test.

ELECTRICAL SAFETY IN LOW VOLTAGE DISTRIBUTION SYSTEMS UP TO 1 000 V AC AND 1 500 V DC – EQUIPMENT FOR TESTING, MEASURING OR MONITORING OF PROTECTIVE MEASURES –

Part 16: Equipment for testing the effectiveness of the protective measures of electrical equipment and/or medical electrical equipment

1 Scope

This part of IEC 61557 specifies the requirements applicable to the performance for test and measurement equipment in order to determine the effectiveness of the protective measures for electrical equipment and/or medical electrical equipment described in IEC 62353.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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.

IEC 60529, *Degrees of protection provided by enclosures (IP Code)*

IEC 60601-1:2005, *Medical electrical equipment – Part 1: General requirements for basic safety and essential performance*
IEC 60601-1:2005/AMD1:2012
IEC 60601-1:2005/AMD2:2020

IEC 61010-1:2010, *Safety requirements for electrical equipment for measurement, control, and laboratory use – Part 1: General requirements*
IEC 61010-1:2010/AMD1:2016

IEC 61010-031, *Safety requirements for electrical equipment for measurement, control and laboratory use – Part 031: Safety requirements for hand-held and hand-manipulated probe assemblies for electrical test and measurement*

IEC 61010-2-030, *Safety requirements for electrical equipment for measurement, control, and laboratory use – Part 2-030: Particular requirements for equipment having testing or measuring circuits*

IEC 61010-2-032, *Safety requirements for electrical equipment for measurement, control and laboratory use – Part 2-032: Particular requirements for hand-held and hand-manipulated current sensors for electrical test and measurement*

IEC 61010-2-034, *Safety requirements for electrical equipment for measurement, control, and laboratory use – Part 2-034: Particular requirements for measurement equipment for insulation resistance and test equipment for electric strength*

IEC 61557-1:2019, *Electrical safety in low voltage distribution systems up to 1 000 V AC and 1 500 V DC – Equipment for testing, measuring or monitoring of protective measures – Part 1: General requirements*

IEC 61557-2, *Electrical safety in low voltage distribution systems up to 1 000 V AC and 1 500 V DC – Equipment for testing, measuring or monitoring of protective measures – Part 2: Insulation resistance*

IEC 61557-4, *Electrical safety in low voltage distribution systems up to 1 000 V AC and 1 500 V DC – Equipment for testing, measuring or monitoring of protective measures – Part 4: Resistance of earth connection and equipotential bonding*

IEC 61557-10, *Electrical safety in low voltage distribution systems up to 1 000 V AC and 1 500 V DC – Equipment for testing, measuring or monitoring of protective measures – Part 10: Combined measuring equipment for testing, measuring or monitoring of protective measures*

IEC 61557-13, *Electrical safety in low voltage distribution systems up to 1 000 V AC and 1 500 V DC – Equipment for testing, measuring or monitoring of protective measures – Part 13: Hand-held and hand-manipulated current clamps and sensors for measurement of leakage currents in electrical distribution systems*

IEC 62353:2014, *Medical electrical equipment – Recurrent test and test after repair of medical electrical equipment*