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## **Elsäkerhet i elektriska starkströmsanläggningar för lågspänning – Utrustning för provning, mätning och övervakning av skyddsåtgärder – Del 9: Lokalisering av isolationsfel i IT-system**

*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 9: Equipment for insulation fault location in IT systems*

Som svensk standard gäller europastandarden EN 61557-9:2015. Den svenska standarden innehåller den officiella engelska språkversionen av EN 61557-9:2015.

### **Nationellt förord**

Europastandarden EN 61557-9:2015

består av:

- **europastandardens ikraftsättningsdokument**, utarbetat inom CENELEC
- **IEC 61557-9, Third edition, 2014 - 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 9: Equipment for insulation fault location in IT systems**

utarbetad inom International Electrotechnical Commission, IEC.

Standarden ska användas tillsammans med SS-EN 61557-1.

Tidigare fastställd svensk standard SS-EN 61557-9, utgåva 2, 2009, gäller ej fr o m 2018-01-15.

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### **SEK Svensk Elstandard**

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English Version

**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 9: Equipment for  
insulation fault location in IT systems  
(IEC 61557-9:2014)**

Sécurité électrique dans les réseaux de distribution basse  
tension de 1 000 V c.a. et 1 500 V c.c. - Dispositifs de  
contrôle, de mesure ou de surveillance de mesures de  
protection - Partie 9: Dispositifs de localisation de défauts  
d'isolement pour réseaux IT  
(IEC 61557-9:2014)

Elektrische Sicherheit in Niederspannungsnetzen bis AC 1  
000 V und DC 1 500 V - Geräte zum Prüfen, Messen oder  
Überwachen von Schutzmaßnahmen - Teil 9: Einrichtungen  
zur Isolationsfehlersuche in IT-Systemen  
(IEC 61557-9:2014)

This European Standard was approved by CENELEC on 2015-01-15. 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**

## Foreword

The text of document 85/486/FDIS, future edition 3 of IEC 61557-9, prepared by IEC/TC 85 "Measuring equipment for electrical and electromagnetic quantities" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 61557-9:2015.

The following dates are fixed:

- latest date by which the document has to be (dop) 2015-10-15  
implemented at national level by  
publication of an identical national  
standard or by endorsement
- latest date by which the national (dow) 2018-01-15  
standards conflicting with the  
document have to be withdrawn

This document supersedes EN 61557-9:2009

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).

## Endorsement notice

The text of the International Standard IEC 61557-9:2014 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 60364-4-41:2005	NOTE	Harmonized as HD 60364-4-41:2007.
IEC 60664-1	NOTE	Harmonized as EN 60664-1.
IEC 60664-3	NOTE	Harmonized as EN 60664-3.
IEC 60947-5-1:2003	NOTE	Harmonized as EN 60947-5-1:2004.
IEC 60947-5-4:2002	NOTE	Harmonized as EN 60947-5-4:2003.
IEC 61140	NOTE	Harmonized as EN 61140.
IEC 61810-2:2011	NOTE	Harmonized as EN 61810-2:2011.

## 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](http://www.cenelec.eu).

Publication	Year	Title	EN/HD	Year
IEC 60068-2-1	-	Environmental testing -- Part 2-1: Tests - Test A: Cold	EN 60068-2-1	-
IEC 60068-2-2	-	Environmental testing -- Part 2-2: Tests - Test B: Dry heat	EN 60068-2-2	-
IEC 60068-2-6	-	Environmental testing -- Part 2-6: Tests - Test Fc: Vibration (sinusoidal)	EN 60068-2-6	-
IEC 60068-2-27	-	Environmental testing -- Part 2-27: Tests - Test Ea and guidance: Shock	EN 60068-2-27	-
IEC 60364-7-710 (mod)	2002	Electrical installations of buildings -- Part 7-710: Requirements for special installations or locations - Medical locations	HD 60364-7-710	2012
IEC 60529	-	Degrees of protection provided by enclosures - (IP Code)	+AC	2013
IEC 60664	series	Insulation coordination for equipment within low-voltage systems	EN 60664	series
IEC 60721-3-1	-	Classification of environmental conditions -- Part 3: Classification of groups of environmental parameters and their severities -- Section 1: Storage	EN 60721-3-1	-
IEC 60721-3-2	-	Classification of environmental conditions -- Part 3: Classification of groups of environmental parameters and their severities -- Section 2: Transportation	EN 60721-3-2	-
IEC 60721-3-3	-	Classification of environmental conditions -- Part 3: Classification of groups of environmental parameters and their severities -- Section 3: Stationary use at weatherprotected locations	EN 60721-3-3	-
IEC 61010-1	2010	Safety requirements for electrical equipment for measurement, control and laboratory use - Part 1: General requirements	EN 61010-1	2010
IEC 61010-2-030	-	Safety requirements for electrical equipment for measurement, control and laboratory use - Part 2-030: Particular requirements for testing and measuring circuits	EN 61010-2-030	-
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 61010-031	-	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	-
IEC 61326-2-2	-	Electrical equipment for measurement, control and laboratory use - EMC requirements -- Part 2-2: Particular requirements - Test configurations, operational conditions and performance criteria for portable test, measuring and monitoring equipment used in low-voltage distribution systems	EN 61326-2-2	-
IEC 61326-2-4	-	Electrical equipment for measurement, control and laboratory use - EMC requirements -- Part 2-4: Particular requirements - Test configurations, operational conditions and performance criteria for insulation monitoring devices according to IEC 61557-8 and for equipment for insulation fault location according to IEC 61557-9	EN 61326-2-4	-
IEC 61557-1	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 1: General requirements	EN 61557-1	2007
IEC 61557-8	-	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 8: insulation monitoring devices for it systems	EN 61557-8	-
CISPR 11	-	Industrial, scientific and medical equipment - Radio-frequency disturbance characteristics - Limits and methods of measurement	EN 55011	-

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## INTERNATIONAL ELECTROTECHNICAL COMMISSION

**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 9: Equipment for insulation fault location in IT systems**

## 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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International Standard IEC 61557-9 has been prepared by IEC technical committee 85: Measuring equipment for electrical and electromagnetic quantities.

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

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

- a) the scope, normative references, terms and definitions have been complemented;
- b) abbreviations are listed and explained;
- c) requirements, marking and operating instructions have been revised;
- d) mandatory and optional functions have been defined and their terminology has been adapted to IEC 61557-15;

- e) mechanical requirements have been added;
- f) Clause 6 “Tests” has been revised;
- g) new Tables have been added.

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

FDIS	Report on voting
85/486/FDIS	85/503/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.

This part of IEC 61557 shall be used in conjunction with Part 1.

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 a.c. and 1 500 V d.c. – 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 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.

# **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 9: Equipment for insulation fault location in IT systems**

### **1 Scope**

This part of IEC 61557 specifies the requirements for the insulation fault location system (IFLS) which localizes insulation faults in any part of the system in unearthed IT a.c. systems and unearthed IT a.c. systems with galvanically connected d.c. circuits having nominal voltages up to 1 000 V a.c., as well as in unearthed IT d.c. systems with voltages up to 1 500 V d.c., independent of the measuring principle.

IT systems are described in IEC 60364-4-41 amongst other literature. Additional data for a selection of devices in other standards should be noted.

NOTE Further information on insulation fault location can be found in the following standards: IEC 60364-4-41:2005, 411.6, and IEC 60364-5-53:2001, 531.3.

### **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 60068-2-1, *Environmental testing – Part 2-1: Tests – Test A: Cold*

IEC 60068-2-2, *Environmental testing – Part 2-2: Tests – Test B: Dry heat*

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

IEC 60068-2-27, *Environmental testing – Part 2-27: Tests – Test Ea and guidance: Shock*

IEC 60364-7-710:2002, *Electrical installations of buildings – Part 7-710: Requirements for special installations or locations – Medical locations*

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

IEC 60664 (all parts): *Insulation coordination for equipment within low-voltage systems*

IEC 60721-3-1, *Classification of environmental conditions – Part 3: Classification of groups of environmental parameters and their severities – Section 1: Storage*

IEC 60721-3-2, *Classification of environmental conditions – Part 3: Classification of groups of environmental parameters and their severities – Section 2: Transportation*

IEC 60721-3-3, *Classification of environmental conditions – Part 3-3: Classification of groups of environmental parameters and their severities – Stationary use at weatherprotected locations*

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

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

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

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 61326-2-2, *Electrical equipment for measurement, control and laboratory use – EMC requirements – Part 2-2: Particular requirements – Test configurations, operational conditions and performance criteria for portable test, measuring and monitoring equipment used in low-voltage distribution systems*

IEC 61326-2-4, *Electrical equipment for measurement, control and laboratory use – EMC requirements – Part 2-4: Particular requirements – Test configurations, operational conditions and performance criteria for insulation monitoring devices according to IEC 61557-8 and for equipment for insulation fault location according to IEC 61557-9*

IEC 61557-1:2007, *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 1: General requirements*

IEC 61557-8, *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 8: Insulation monitoring devices for IT systems*

CISPR 11, *Industrial, scientific and medical equipment - Radio-frequency disturbance characteristics - Limits and methods of measurement*