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Elsäkerhet i elinstallationer 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 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*

Som svensk standard gäller europastandarden EN IEC 61557-9:2025. Den svenska standarden innehåller den officiella engelska språkversionen av EN IEC 61557-9:2025.

Nationellt förord

Europastandarden EN IEC 61557-9:2025

består av:

- **europastandardens ikraftsättningsdokument**, utarbetat inom CENELEC
- **IEC 61557-9, Fourth edition, 2023 - 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**

utarbetad inom International Electrotechnical Commission, IEC.

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EUROPEAN STANDARD

EN IEC 61557-9

NORME EUROPÉENNE

EUROPÄISCHE NORM

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Supersedes EN 61557-9:2015; EN 61557-9:2015/AC:2016-06; EN 61557-9:2015/AC:2017-02

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 9: Equipment for insulation fault location in IT systems
(IEC 61557-9:2023)**

Sécurité électrique dans les réseaux de distribution basse tension au plus égale à 1 000 V en C.A et 1 500 V en 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 61557-9:2023)

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 61557-9:2023)

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.

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SEK Svensk Elstandard

SS-EN IEC 61557-9, utg 4:2025

European foreword

The text of document 85/896/FDIS, future edition 4 of IEC 61557-9, 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 61557-9:2025.

The following dates are fixed:

- latest date by which the document has to be implemented at national (dop) 2026-04-30 level by publication of an identical national standard or by endorsement
- latest date by which the national standards conflicting with the (dow) 2028-04-30 document have to be withdrawn

This document supersedes EN 61557-9:2015 and all of its amendments and corrigenda (if any).

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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 61557-9:2023 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 60364-4-41:2005	NOTE	Approved as HD 60364-4-41:2017 +A11:2017
IEC 60664 series	NOTE	Approved as EN 60664 series
IEC 60664-1	NOTE	Approved as EN IEC 60664-1
IEC 60664-3	NOTE	Approved as EN 60664-3
IEC 61557-15	NOTE	Approved as EN 61557-15
IEC 61810-2:2017	NOTE	Approved as EN 61810-2:2017 (not modified)

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.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60068-2-1	2007	Environmental testing - Part 2-1: Tests - Test A: Cold	EN 60068-2-1	2007
IEC 60068-2-2	2007	Environmental testing - Part 2-2: Tests - Test B: Dry heat	EN 60068-2-2	2007
IEC 60068-2-6	-	Environmental testing - Part 2-6: Tests - Test Fc: Vibration (sinusoidal)	EN 60068-2-6	-
IEC 60068-2-27	2008	Environmental testing - Part 2-27: Tests - Test Ea and guidance: Shock	EN 60068-2-27	2009
IEC 60364-7-710	2021	Low-voltage electrical installations - Part 7-710: Requirements for special installations or locations - Medical locations	HD 60364-7-710	2024
IEC 60529	-	Degrees of protection provided by enclosures (IP Code)	EN 60529	-
IEC 60721-3-1	2018	Classification of environmental conditions - Part 3-1: Classification of groups of environmental parameters and their severities - Storage	EN IEC 60721-3-1	2018
IEC 60721-3-2	2018	Classification of environmental conditions - Part 3-2: Classification of groups of environmental parameters and their severities - Transportation and Handling	EN IEC 60721-3-2	2018
IEC 60721-3-3	2019	Classification of environmental conditions - Part 3-3: Classification of groups of environmental parameters and their severities - Stationary use at weatherprotected locations	EN IEC 60721-3-3	2019
IEC 60947-5-1	2016	Low-voltage switchgear and controlgear - Part 5-1: Control circuit devices and switching elements - Electromechanical control circuit devices	EN 60947-5-1	2017

EN IEC 61557-9:2025 (E)

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60947-5-4	2002	Low-voltage switchgear and controlgear - Part 5-4: Control circuit devices and switching elements - Method of assessing the performance of low-energy contacts - Special tests	EN 60947-5-4	2003
+ A1	2019		+ A1	2019
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
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	-
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 61010-2-032	-	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 IEC 61010-2-032	-
IEC 61140	-	Protection against electric shock - Common aspects for installation and equipment	EN 61140	-
IEC 61326-1	2020	Electrical equipment for measurement, control and laboratory use - EMC requirements - Part 1: General requirements	EN IEC 61326-1	2021
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 testing, measuring and monitoring equipment used in low-voltage distribution systems	EN IEC 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 IEC 61326-2-4	-

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
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 61557-8	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 8: Insulation monitoring devices for IT systems	EN 61557-8	2015
IEC 61810-2	2017	Electromechanical elementary relays - Part 2: Reliability	EN 61810-2	2017

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 9: Equipment for insulation fault location in IT systems

Sécurité électrique dans les réseaux de distribution basse tension au plus égale à 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

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CONTENTS

FOREWORD.....	5
1 Scope.....	7
2 Normative references	7
3 Terms, definitions and abbreviated terms	9
3.1 Terms, definitions, symbols and units	9
3.2 Abbreviated terms and symbols	12
4 Requirements	13
4.1 General requirements	13
4.2 Functions provided by an IFLS.....	14
4.2.1 Location warning	14
4.2.2 Local location warning (LLW).....	14
4.2.3 Remote location warning (RLW).....	14
4.3 Optional functions provided by IFLS.....	14
4.3.1 Indication of the insulation value.....	14
4.3.2 Alarm in case of the interruption of the loss of the connection to the locating current sensor (LCS)	14
4.3.3 Self-test.....	14
4.4 Performance requirements.....	15
4.4.1 Response sensitivity	15
4.4.2 Locating current I_L and locating voltage U_L	15
4.4.3 Permanently admissible nominal voltage U_{pa}	15
4.4.4 Supply voltage U_S	16
4.5 Safety requirements.....	16
4.5.1 Clearance and creepage distances	16
4.5.2 Protection class and earth connection of the IFLS	16
4.6 Electromagnetic compatibility.....	16
4.7 Mechanical requirements	16
4.7.1 Product mechanical robustness	16
4.7.2 IP protection class requirements.....	16
4.8 Climatic environmental conditions	17
5 Marking and operating instructions	17
5.1 Marking.....	17
5.2 Operating instructions	17
6 Tests	18
6.1 General.....	18
6.2 Type tests	18
6.2.1 Climatic tests	18
6.2.2 Test of response sensitivity of the IFLS	19
6.2.3 Test of the locating current I_L and locating voltage U_L	20
6.2.4 Test of the location warning.....	23
6.2.5 Test of the indication of the insulation value	23
6.2.6 Verification of insulation coordination	23
6.2.7 Test of the electromagnetic compatibility (EMC)	23
6.2.8 Test of the loss of LCS connection	23
6.2.9 Test of the protection class and of the earth connection of the IFLS	23
6.2.10 Inspection of the marking and operating instructions.....	23

6.2.11	Mechanical test	23
6.2.12	Record of the type test	24
6.3	Routine tests	24
6.3.1	General	24
6.3.2	Voltage test	24
6.3.3	Recording of routine tests	24
7	Overview of requirements and tests for IFLS	25
Annex A (normative)	Insulation fault location system in medical locations (MED-IFLS)	26
A.1	General	26
A.2	Requirements	26
A.2.1	General	26
A.2.2	Performance requirements	26
A.2.3	Electromagnetic compatibility	26
A.3	Additional tests	27
A.3.1	General	27
A.3.2	Test of the performance requirements	27
A.3.3	Test of the response time	27
A.3.4	Test of the electromagnetic compatibility (EMC)	27
Annex B (normative)	Portable equipment for insulation fault location	29
B.1	General	29
B.2	Additional requirements	29
B.2.1	General	29
B.2.2	Performance requirements	29
B.3	Marking and operating instructions	29
B.4	Additional tests	29
Annex C (informative)	Example of an IFLS and explanation of upstream and downstream system leakage capacitances	30
C.1	Examples for the functions of an IFLS	30
C.2	Upstream and downstream system leakage capacitance	32
Bibliography	33
Figure 1	– Test configuration: I_L driven directly from the system to be monitored	21
Figure 2	– Test configuration: Active locating source	22
Figure 3	– Test configuration for current testing: Active locating source is used with a locating voltage above 50 V AC RMS and 70 V peak or 120 V DC	22
Figure C.1	– Example of an IFLS	31
Figure C.2	– Explanation of upstream and downstream system leakage capacitance	32
Table 1	– Abbreviated terms and symbols	12
Table 2	– Minimum IP requirements for IFLS	17
Table 3	– Reference conditions for testing	18
Table 4	– Climatic tests in operation	19
Table 5	– Climatic tests for storage	19
Table 6	– List of test conditions (TC)	19
Table 7	– Product mechanical test	24
Table 8	– Requirements and tests on IFLSs	25

Table A.1 – Additional requirements applicable to MED-IFLS 27
Table A.2 – Emission test for MED-IFLS 28

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

This fourth edition cancels and replaces the third 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) new terms and definitions on maximum admissible locating AC and DC currents and voltages;
- b) the requirements on locating current and locating voltage have been revised;

- c) performance requirements have been added;
- d) the test requirements for locating current and locating voltage have been revised;
- e) the structure of this document has been adapted to that of IEC 61557-1:2019;
- f) the limit values under Clause A.2 were adapted to fit the changed test methods in 6.2.3.

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

Draft	Report on voting
85/896/FDIS	85/901/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 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, or
- revised.

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) that localizes insulation faults in any part of the system in unearthed IT AC systems and unearthed IT AC systems with galvanically connected DC circuits having nominal voltages up to 1 000 V AC, as well as in unearthed IT DC systems with voltages up to 1 500 V DC, independent of the measuring principle.

NOTE 1 IT systems are described in IEC 60364-4-41. Further information on insulation fault location can be found in the following International Standards: IEC 60364-4-41:2005, 411.6 and IEC 60364-4-41:2005/AMD1:2017, 411.6, and IEC 60364-5-53:2019/AMD1:2020, 531.3.

NOTE 2 This document covers both passive IFLS and active IFLS. Active IFLS can be used in de-energised systems.

NOTE 3 This document does not cover IMD complying with IEC 61557-8.

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 60068-2-1:2007, *Environmental testing – Part 2-1: Tests – Test A: Cold*

IEC 60068-2-2:2007, *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 60068-2-27:2008, *Environmental testing – Part 2-27: Tests – Test Ea and guidance: Shock*

IEC 60364-7-710:2021, *Low-voltage electrical installations – Part 7-710: Requirements for special installations or locations – Medical locations*

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

IEC 60721-3-1:2018, *Classification of environmental conditions – Part 3-1: Classification of groups of environmental parameters and their severities – Storage*

IEC 60721-3-2:2018, *Classification of environmental conditions – Part 3-2: Classification of groups of environmental parameters and their severities – Transportation and handling*

IEC 60721-3-3:2019, *Classification of environmental conditions – Part 3-3: Classification of groups of environmental parameters and their severities – Stationary use at weatherprotected locations*

IEC 60947-5-1:2016, *Low-voltage switchgear and controlgear – Part 5-1: Control circuit devices and switching elements – Electromechanical control circuit devices*

IEC 60947-5-4:2002, *Low-voltage switchgear and controlgear – Part 5-4: Control circuit devices and switching elements – Method of assessing the performance of low-energy contacts – Special tests*

IEC 60947-5-4:2002/AMD1:2019

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

IEC 61010-031, *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 61010-2-032, *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 61140, *Protection against electric shock – Common aspects for installation and equipment*

IEC 61326-1:2020, *Electrical equipment for measurement, control and laboratory use – EMC requirements – Part 1: General requirements*

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 testing, 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 61557-1:2019, *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 61557-8:2014, *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 8: Insulation monitoring devices for IT systems*

IEC 61810-2:2017, *Electromechanical elementary relays – Part 2: Reliability*