



BSI Standards Publication

**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**

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Part 3: Loop impedance

## National foreword

This British Standard is the UK implementation of EN IEC 61557-3:2022. It is identical to IEC 61557-3:2019. It supersedes BS EN 61557-3:2007, which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee PEL/85, Measuring equipment for electrical and electromagnetic quantities.

A list of organizations represented on this committee can be obtained on request to its committee manager.

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EUROPEAN STANDARD

**EN IEC 61557-3**

NORME EUROPÉENNE

EUROPÄISCHE NORM

May 2022

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Supersedes EN 61557-3:2007

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 3: Loop impedance  
(IEC 61557-3:2019)**

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 3: Impédance de boucle  
(IEC 61557-3:2019)

Elektrische Sicherheit in Niederspannungsnetzen bis AC  
1 000 V und DC 1 500 V - Geräte zum Prüfen, Messen oder  
Überwachen von Schutzmaßnahmen - Teil 3:  
Schleifenwiderstand  
(IEC 61557-3:2019)

This European Standard was approved by CENELEC on 2022-04-06. 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.

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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**

## European foreword

The text of document 85/687/FDIS, future edition 3 of IEC 61557-3, 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 IEC 61557-3:2022.

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) 2023-01-06
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2025-04-06

This document supersedes EN 61557-3:2007 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 has been prepared under a Standardization Request given to CENELEC by the European Commission and the European Free Trade Association.

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 61557-3:2019 was approved by CENELEC as a European Standard without any modification.

In the official version, for Bibliography, the following note has to be added for the standard indicated:

IEC 61800-5-2 NOTE Harmonized as EN 61800-5-2

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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 3: Loop impedance**

## FOREWORD

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International Standard IEC 61557-3 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 2007. This edition constitutes a technical revision.

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

- a) addition of requirements as regards the measurement category;
- b) addition of new requirements for operating instructions;
- c) alignment of the structure with that of the whole IEC 61557 series.

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

|             |                  |
|-------------|------------------|
| FDIS        | Report on voting |
| 85/687/FDIS | 85/694/RVD       |

Full information on the voting for the approval of this International Standard can be found in the report on voting indicated in the above table.

This document has been drafted in accordance with the ISO/IEC Directives, Part 2.

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 "<http://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.

# 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 3: Loop impedance

### 1 Scope

This part of IEC 61557 specifies the requirements applicable to equipment for measuring the loop impedance between a line conductor and protective conductor; between a line conductor and neutral; or between two line conductors by using the voltage drop when the circuit under test is loaded.

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

IEC 61010-2-030:2017, *Safety requirements for electrical equipment for measurement, control, and laboratory use – Part 2-030: Particular requirements for equipment having testing or measuring circuits*

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*

### 3 Terms and definitions

For the purposes of this document, the terms and definitions given in IEC 61557-1 and the following apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at <http://www.electropedia.org/>
- ISO Online browsing platform: available at <http://www.iso.org/obp>

#### 3.1 loading

method of applying a load to a circuit within a distribution system to cause a voltage drop

<sup>1</sup> A consolidated version of this publication exists, comprising IEC 61010-1:2010 and IEC 61010-1:2010/AMD1:2016.