



BSI Standards Publication

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 11: Effectiveness of residual current monitors (RCMs) type A and type B in TT, TN and IT systems

National foreword

This British Standard is the UK implementation of EN 61557-11:2009. It is identical to IEC 61557-11:2009.

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 secretary.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

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Compliance with a British Standard cannot confer immunity from legal obligations.

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EUROPEAN STANDARD
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EN 61557-11

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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 11: Effectiveness of residual current monitors (RCMs)
type A and type B in TT, TN and IT systems
(IEC 61557-11:2009)**

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 11: Efficacité des contrôleurs
d'isolement à courant différentiel résiduel
(RCM) de type A et de type B
dans les réseaux TT, TN et IT
(CEI 61557-11:2009)

Elektrische Sicherheit
in Niederspannungsnetzen
bis AC 1 000 V und DC 1 500 V -
Geräte zum Prüfen, Messen oder
Überwachen von Schutzmaßnahmen -
Teil 11: Wirksamkeit von Differenzstrom-
Überwachungsgeräten (RCMs) Typ A
und Typ B in TT-, TN- und IT-Systemen
(IEC 61557-11:2009)

This European Standard was approved by CENELEC on 2009-02-01. 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 Central Secretariat 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 Central Secretariat has the same status as the official versions.

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CENELEC

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

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Foreword

The text of document 85/338/FDIS, future edition 1 of IEC 61557-11, prepared by IEC TC 85, Measuring equipment for electrical and electromagnetic quantities, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 61557-11 on 2009-02-01.

This standard is to be used in conjunction with EN 61557-1:2007.

The following dates were fixed:

- latest date by which the EN has to be implemented
at national level by publication of an identical
national standard or by endorsement (dop) 2009-11-01
- latest date by which the national standards conflicting
with the EN have to be withdrawn (dow) 2012-02-01

Annex ZA has been added by CENELEC.

Endorsement notice

The text of the International Standard IEC 61557-11:2009 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	NOTE	Harmonized as HD 60364-4-41:2007 (modified).
IEC 60364-5-53	NOTE	Clause 534 (in IEC/A1:2002) harmonized as HD 60364-5-534:2008 (modified).
IEC 60364-6	NOTE	Harmonized as HD 60364-6:2007 (modified).
IEC 60947-2	NOTE	Harmonized as EN 60947-2:2006 (not modified).
IEC 61008-1	NOTE	Harmonized as EN 61008-1:2004 (modified).

Annex ZA (normative)

Normative references to international publications with their corresponding European publications

The following referenced documents are indispensable for the application 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 When an international publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC/TR 60755	2008	General requirements for residual current operated protective devices	-	-
IEC 61010-1	2001	Safety requirements for electrical equipment for measurement, control, and laboratory use - Part 1: General requirements	EN 61010-1 + corr. June	2001 2002
IEC 61326-2-2	- ¹⁾	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	2006 ²⁾
IEC 61557-1	- ¹⁾	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 ²⁾
IEC 61557-6	- ¹⁾	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 6: Effectiveness of residual current devices (RCD) in TT, TN and IT systems	EN 61557-6	2007 ²⁾
IEC 62020	1998	Electrical accessories - Residual current monitors for household and similar uses (RCMs)	EN 62020	1998

¹⁾ Undated reference.

²⁾ Valid edition at date of issue.

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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 11: Effectiveness of residual current monitors (RCMs) type A and type B in TT, TN and IT systems

1 Scope

This part of IEC 61557 specifies the requirements for testing equipment applied to the testing of the effectiveness of residual current monitors (RCMs) of type A and type B, which are already installed in distribution systems.

This test equipment can be used in any kind of network like a TN, TT or IT system. The test equipment may also be used for testing directionally discriminating RCMs in IT-Systems.

2 Normative references

The following referenced documents are indispensable for the application 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/TR 60755:2008, *General requirements for residual current operated protective devices*

IEC 61010-1:2001, *Safety requirements for electrical equipment for measurement, control, and laboratory use – 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 test, measuring and monitoring equipment used in low-voltage distribution systems*

IEC 61557-1, *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 61557-6, *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 6: Effectiveness of residual current devices (RCD) in TT, TN and IT systems*

IEC 62020:1998, *Electrical accessories – Residual current monitors for household and similar uses (RCMs)*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in IEC 61557-1, IEC 61557-6 and the following apply.

3.1**residual current monitor (RCM)**

device or association of devices which monitors the residual current in an electrical installation and which activates an alarm when the residual current exceeds the operating value of the device

[IEC 62020, definition 3.3.1]

3.2**earth fault current** I_e

current flowing to earth due to an insulation fault

[IEC 62020, definition 3.1.1]

3.3**test current** I_T

test current superimposed by the test equipment for testing the effectiveness of the RCM

3.4**residual current** I_Δ

vector sum of the instantaneous values of the current flowing in the main circuit of the RCM (expressed as r.m.s. value)

[IEC 62020, definition 3.2.3]

3.5**rated residual operating current** $I_{\Delta N}$

value of residual current assigned by the manufacturer which causes the RCM to operate under specified conditions

[IEC 62020, definitions 3.2.4 and 3.4.1 combined]

3.6**residual operating current** $I_{\Delta o}$

value of residual current which causes the RCM to operate under specified conditions

[IEC 62020, definition 3.2.4]

3.7**residual non-operating current** $I_{\Delta no}$

value of residual current at which and below which the RCM does not operate under specified conditions

[IEC 62020, definition 3.2.5]

3.8**actuating time** t_a

time taken for a RCM to change from the non-alarm state to the alarm state in response to the sudden appearance of a residual current which exceeds the preset level

[IEC 62020, definition 3.3.12]