
Električni pribor - Monitorji preostalega (diferenčnega) toka za gospodinjsko in podobno uporabo (IEC 62020:1998/A1:2003, spremenjen)

Electrical accessories - Residual current monitors for household and similar uses (RCMs)(IEC 62020:1998/A1:2003, modified)

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EUROPEAN STANDARD

EN 62020/A1

NORME EUROPÉENNE

EUROPÄISCHE NORM

May 2005

ICS 29.120.50

English version

**Electrical accessories –
Residual current monitors for household and similar uses (RCMs)
(IEC 62020:1998/A1:2003, modified)**

Petit appareillage électrique –
Contrôleurs d'isolement à courant
différentiel résiduel (RCM)
pour usages domestiques et analogues
(CEI 62020:1998/A1:2003, modifiée)

Elektrisches Installationsmaterial -
Differenzstrom-Überwachungsgeräte
für Hausinstallationen und ähnliche
Verwendungen (RCMs)
(IEC 62020:1998/A1:2003, modifiziert)

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This amendment A1 modifies the European Standard EN 62020:1998; it was approved by CENELEC on 2005-03-01. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this amendment 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 amendment 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.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

CENELEC

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

Central Secretariat: rue de Stassart 35, B - 1050 Brussels

Foreword

The text of document 23E/531/FDIS, future amendment 1 to IEC 62020:1998, prepared by SC 23E, Circuit-breakers and similar equipment for household use, of IEC TC 23, Electrical accessories, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as amendment A1 to EN 62020:1998 on 2005-03-01.

A draft amendment, aiming to improve subclause 8.18.1 of EN 62020:1998, prepared by the Technical Committee CENELEC TC 23E, Circuit breakers and similar devices for household and similar applications, was submitted to the Unique Acceptance Procedure and was approved by CENELEC on 2005-03-01 for inclusion into amendment A1 to EN 62020:1998.

The following dates were fixed:

- latest date by which the amendment has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2005-12-01
- latest date by which the national standards conflicting with the amendment have to be withdrawn (dow) 2008-03-01

Annex ZA has been added by CENELEC.

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Endorsement notice

The text of amendment 1:2003 to the International Standard IEC 62020:1998 was approved by CENELEC as an amendment to the European Standard with agreed common modifications as given below.

COMMON MODIFICATIONS

8.18.1 Add the following new table:

Table Z.1 – Low frequency immunity test conditions

Reference (see Table 1 of IEC 61543)	Electromagnetic phenomena	Reference of basic standard for test description	Test level and test specification	Subclauses including the performance criteria
T 1.1	Harmonics, inter harmonics	No requirements ^a		
T 1.2	Signalling voltages	No requirements		
T 1.3	Voltage amplitude variations			
	Voltage fluctuations (see NOTE 1)	9.9 and 9.15	From 0,85 U_n to 1,1 U_n	9.15
	Voltage dips	No requirements		
	Voltage interruptions	No requirements		
T 1.4	Voltage unbalance	Refer to T1.3		
T 1.5	Power frequency variations	See NOTE 2		
T 1.8	Magnetic field	9.11 and 9.16		
NOTE 1 Tests specified in product standards do not need be repeated. The functioning of RCMs functionally independent of line voltage is not affected by voltage amplitude variations. The tests of this standard apply only to RCMs dependent on line voltage.				
NOTE 2 Immunity from power frequency variations is ensured by the fact that all performances of the device are tested at frequencies which may be subjected to variations in the range of $\pm 5\%$ of the rated frequency: see 9.2.				
^a A study is undertaken for possible inclusion of requirements in a future revision.				

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 Where 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 60664-3	2003	Insulation coordination for equipment within low-voltage systems Part 3: Use of coating, potting or moulding for protection against pollution	EN 60664-3	2003
CISPR 14-1	2000	Electromagnetic compatibility - Requirements for household appliances, electric tools and similar apparatus	EN 55014-1	2000
A1	2001		A1	2001
A2	2002	Part 1: Emission	A2	2002

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NORME
INTERNATIONALE
INTERNATIONAL
STANDARD

CEI
IEC
62020

1998

AMENDEMENT 1
AMENDMENT 1
2003-09

Amendement 1

**Petit appareillage électrique –
Contrôleurs d'isolement à courant différentiel
résiduel (RCM) pour usages domestiques
et analogues**

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Amendment 1

[SIST EN 62020:2000/A1:2006](https://standards.iteh.ai/catalog/standards/sist/c3027b31-c54b-49cb-b7ea-3d83a892261/sist-en-62020-2000-a1-2006)

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**Electrical accessories –
Residual current monitors for household
and similar uses (RCMs)**

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International Electrotechnical Commission
Международная Электротехническая Комиссия

CODE PRIX
PRICE CODE

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*Pour prix, voir catalogue en vigueur
For price, see current catalogue*

FOREWORD

This amendment has been prepared by subcommittee 23E: Circuit-breakers and similar equipment for household use, of IEC technical committee 23: Electrical accessories.

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

FDIS	Report on voting
23E/531/FDIS	23E/532/RVD

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

The committee has decided that the contents of the base publication and its amendments will remain unchanged until 2005. At this date, the publication will be

- reconfirmed;
- withdrawn;
- replaced by a revised edition, or
- amended.

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Page 3

CONTENTS

Replace the title of subclause 8.18 by the following new title:

8.18 Electromagnetic compatibility (Based on IEC 61543)

Add the title of subclause 8.19 as follows:

8.19 Connection of an external current transformer (CT)

Replace the title of subclause 9.17 by the following title:

9.17 Verification of resistance against unwanted operation due to current surges caused by impulse voltages

Add the title of the new subclause 9.23 as follows:

9.23 Response of the RCM to temporary overvoltages on the LV-side, due to fault conditions on the HV-side

Page 13

1 Scope

Add, after the second paragraph, the following new paragraph:

RCMs covered by this standard are not intended to be used as protective devices.

2 Normative references

Add, to the existing list, the titles of the following standards:

IEC 60664-3:2003, *Insulation coordination for equipment within low-voltage systems – Part 3: Use of coating, potting or moulding for protection against pollution*

CISPR 14-1:2002, *Electromagnetic compatibility – Requirements for household appliances, electric tools and similar apparatus – Part 1: Emission*

Page 19

3.3 Definitions relating to the operation and to the functions of residual current monitors

3.3.4 limiting non-actuating time

Replace, in the definition, "non-operating" by "operating" 2006

<https://standards.iteh.ai/catalog/standards/sist/c3027b31-c54b-49cb-b7ea-3fd83a8922b1/sist-en-62020-2000-a1-2006>

3.3.13 functional earth connection (FE)

Replace, on page 21, this definition by the following:

3.3.13 functional earth connection (FE)

electrical connection between RCM and earth which is provided to ensure:

- a reference point for RCMs having a discriminating function (see 4.11) and/or
- continued operation in the event of loss of supply neutral

Add the following new definitions:

3.3.14 maximum actuating time (T_{\max})

the maximum actuating time for residual currents greater than or equal to $I_{\Delta n}$ for RCMs with adjustable time delay

3.3.15 minimum non-actuating time (T_{\min})

the minimum non-actuating time for residual currents greater than or equal to $I_{\Delta n}$ for RCMs with adjustable time delay

Page 29

4 Classification

4.9.1 RCM to which the load conductors are not directly connected, i.e.:

Replace, on page 31, the existing title and text of this subclause by the following:

4.9.1 RCM to which the monitored line is not directly connected

See Figure 22a.

4.9.2 RCM to which the load conductors are directly connected

Replace the existing title of this subclause by the following:

4.9.2 RCM to which the monitored line is directly connected

Add the following new text:

See Figure 22b.

Page 31

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5 Characteristics of RCMs

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5.2.2 Rated current (I_n)

Delete, on page 33, the last sentence.

Page 35

5.3.3 Preferred values of rated residual operating current ($I_{\Delta n}$)

In the first line replace "Standard" by "Preferred".

Delete the note.

Page 37

5.3.10 Minimum value of internal impedance for directionally discriminating RCMs

Replace the existing title and text of this subclause by the following:

5.3.10 Minimum non-actuating time (T_{\min})

For RCMs with minimum non-actuating time according to 3.3.15, this time shall be declared by the manufacturer.

Page 39

6 Marking and other product information

Replace the first sentence by the following:

Each RCM and external devices of RCMs, if applicable, shall be marked in a durable manner with the following data:

Add on page 41, after item p) the following new items:

- q) the maximum actuating time (see 5.3.9);
- r) the minimum non-actuating time (see 5.3.10);
- s) the FE-terminal shall be marked “FE”.

If, for small devices, the space available does not allow all the above data to be marked, at least the information under e), f), k) and, as applicable, o) and p) shall be marked and visible when the device is installed. The remaining information shall be given in the manufacturer's catalogues.

Page 43

8 Requirements for construction and operation

8.1.2 Features

Replace, on page 44, the first sentence by the following:

The RCM shall be provided with a visual “Power on” indicator which shall neither be red, yellow nor blue.

8.1.3 Clearances and creepage distances (see also Annex B)

Replace the paragraph and note before Table 2 by the following:

Clearance and creepage distances applicable to the RCM and its external components, e.g. current transformers etc., with the exception of printed circuit boards, shall comply with the requirements of Table 2 when the RCM is mounted as for normal use.

The above requirements shall also apply to active conductors (phases and neutral) connected directly to the printed circuit board.

Creepage distances applicable to printed circuit boards of the RCM shall comply with the requirements of Table 4 of IEC 60664-1, “Creepage distances to avoid failure due to tracking”, Pollution degree 2, Material group III.

Table 4 of IEC 60664-1 includes requirements for uncoated printed circuit boards. IEC 60664-3 provides for reduced clearance and creepage distances for printed circuit boards using a protective coating, potting or moulding. Such printed circuit boards may therefore be verified for compliance in accordance with IEC 60664-3 instead of Table 4 of IEC 60664-1.

Page 53

8.2 Protection against electric shock

Add, after the second paragraph, the following new paragraph:

The continuous current through the protective conductor shall not exceed 1 mA under normal supply conditions.

Replace the last paragraph by the following:

Compliance is checked by measurement, by inspection and by the test of 9.6.

Page 57

8.6 Directional discrimination

Number the existing text as 8.6.1. Add the following new subclause 8.6.2 (former subclause 5.3.10).

8.6.2 The internal impedance between line terminal and the FE terminal shall have a value not less than 10 M Ω at 50/60 Hz. At higher frequencies the impedance may be reduced proportionally, however to not less than 1 M Ω .

Compliance is checked by the tests under 9.9.5 e).

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Page 61

8.18 EMC requirements

[SIST EN 62020:2000/A1:2006](https://standards.iteh.ai/catalog/standards/sist/c3027b31-c54b-49cb-b7ea-3fd83a8922b1/sist-en-62020-2000-a1-2006)

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Replace the existing title and text by the following:

8.18 Electromagnetic compatibility (Based on IEC 61543)

Standard electromagnetic environmental conditions are those conditions which occur in installations connected to low voltage public networks or similar installations.

8.18.1 Low frequency electromagnetic phenomena

The type tests set out in this standard contain the EMC requirements for low frequency electromagnetic phenomena as applicable to RCMs.

NOTE Additional tests covering harmonics, interharmonics and signalling voltages are being considered (IEC SC 23E).

8.18.2 High frequency immunity

The data for the high frequency immunity to be applied are set out in Table 15.

8.18.3 Electrostatic discharges

The data for the electrostatic discharge tests to be applied are set out in Table 15.