



# SLOVENSKI STANDARD SIST EN 60255-21-3:2001

01-september-2001

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## Electrical relays - Part 21: Vibration, shock, bump and seismic tests on measuring relays and protection equipment - Section 3: Seismic tests

Electrical relays -- Part 21: Vibration, shock, bump and seismic tests on measuring relays and protection equipment -- Section 3: Seismic tests

Elektrische Relais -- Teil 21: Schwing-, Schock-, Dauerschock- und Erdbebenprüfungen an Meßrelais und Schutzeinrichtungen -- Hauptabschnitt 3: Erdbebenprüfungen

Relais électriques -- Partie 21: Essais de vibrations, de chocs, de secousses et de tenue aux séismes applicables aux relais de mesure et aux dispositifs de protection -- Section 3: Essais de tenue aux séismes

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Ta slovenski standard je istoveten z: EN 60255-21-3:1995

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### ICS:

29.120.70      Releji                                      Relays

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EUROPEAN STANDARD  
NORME EUROPÉENNE  
EUROPÄISCHE NORM

**EN 60255-21-3**

March 1995

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Descriptors: Electrical relays, seismic tests

English version

**Electrical relays**  
**Part 21: Vibration, shock, bump and seismic tests on**  
**measuring relays and protection equipment**  
**Section 3: Seismic tests**  
**(IEC 255-21-3:1993)**

Relais électriques

Partie 21: Essais de vibrations, de chocs, de secousses et de tenue aux séismes applicables aux relais de mesure et aux dispositifs de protection  
Section 3: Essais de tenue aux séismes  
(CEI 255-21-3:1993)

Elektrische Relais

Teil 21: Schwing-, Schock-, Dauerschock- und Erdbebenprüfungen an Meßrelais und Schutzeinrichtungen  
Hauptabschnitt 3: Erdbebenprüfungen  
(IEC 255-21-3:1993)

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This European Standard was approved by CENELEC on 1995-03-06. 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 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.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, 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 the International Standard IEC 255-21-3:1993, prepared by IEC TC 95, Measuring relays and protection equipment, was submitted to the formal vote and was approved by CENELEC as EN 60255-21-3 on 1995-03-06 without any modification.

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) 1996-03-01
- latest date by which the national standards conflicting  
with the EN have to be withdrawn (dow) 1996-03-01

Annexes designated "normative" are part of the body of the standard.  
Annexes designated "informative" are given for information only.  
In this standard, annex ZA is normative and annex A is informative.  
Annex ZA has been added by CENELEC.

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### Endorsement notice

The text of the International Standard IEC 255-21-3:1993 was approved by CENELEC as a European Standard without any modification.

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## ANNEX ZA (normative)

OTHER INTERNATIONAL PUBLICATIONS QUOTED IN THIS STANDARD  
WITH THE REFERENCES OF THE RELEVANT EUROPEAN PUBLICATIONS

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

NOTE : When the international publication has been modified by CENELEC common modifications, indicated by (mod), the relevant EN/HD applies.

IEC Publication	Date	Title	EN/HD	Date
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50	-	International Electrotechnical Vocabulary (IEV)	-	-
68-2-6	1982	Environmental testing - Part 2: Tests Test Fc and guidance: Vibration (sinusoidal)	HD 323.2.6 S2*	1988
68-2-57	1989	Part 2: Test methods Test Ff: Vibration - Time-history method	EN 60068-2-57	1993
68-3-3	1991	Part 3: Guidance Seismic test methods for equipments	EN 60068-3-3	1993
255-21-1	1988	Electrical relays - Part 21: Vibration, shock, bump and seismic tests on measuring relays and protection equipment - Section 1: Vibration tests (sinusoidal)	-	-
255-21-2	1988	Part 21: Vibration, shock, bump and seismic tests on measuring relays and protection equipment Section 2: Shock and bump tests	-	-

Other publication:

ISO 2041:1990 - Vibration and shock - Vocabulary

\* HD 323.2.6 S2 includes A1:1983 + A2:1985 to IEC 68-2-6

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255-21-3

Première édition  
First edition  
1993-09

**Relais électriques –**

**Partie 21:**

Essais de vibrations, de chocs, de secousses  
et de tenue aux séismes applicables aux relais  
de mesure et aux dispositifs de protection –  
Section 3: Essais de tenue aux séismes

[SIST EN 60255-21-3:2001](https://standards.iteh.ai/catalog/standards/sist/af98e782-b791-4792-b420-f21033050004/iec-60255-21-3-2001)

[https://standards.iteh.ai/catalog/standards/sist/af98e782-b791-4792-b420-](https://standards.iteh.ai/catalog/standards/sist/af98e782-b791-4792-b420-f21033050004/iec-60255-21-3-2001)

**Electrical relays –**

**Part 21:**

Vibration, shock, bump and seismic tests  
on measuring relays and protection equipment –  
Section 3: Seismic tests

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Commission Electrotechnique Internationale  
International Electrotechnical Commission  
Международная Электротехническая Комиссия

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## INTERNATIONAL ELECTROTECHNICAL COMMISSION

## ELECTRICAL RELAYS –

**Part 21: Vibration, shock, bump and seismic tests  
on measuring relays and protection equipment –  
Section 3: Seismic tests**

## FOREWORD

- 1) The IEC (International Electrotechnical Commission) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of the IEC is to promote international cooperation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, the IEC publishes International Standards. 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. The IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
- 2) The formal decisions or agreements of the IEC on technical matters, prepared by technical committees on which all the National Committees having a special interest therein are represented, express, as nearly as possible, an international consensus of opinion on the subjects dealt with.
- 3) They have the form of recommendations for international use published in the form of standards, technical reports or guides and they are accepted by the National Committees in that sense.
- 4) In order to promote international unification, IEC National Committees undertake to apply IEC International Standards transparently to the maximum extent possible in their national and regional standards. Any divergence between the IEC Standard and the corresponding national or regional standard shall be clearly indicated in the latter.

International Standard IEC 255-21-3 has been prepared by IEC technical committee 95: Measuring relays and protection equipment.

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

DIS	Report on Voting	Amendment to DIS	Report on Voting
41B(CO)54*	41B(CO)57	41B(CO)58	41B(CO)69

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

Annex A is for information only.

\* Subcommittee 41B has been changed into new technical committee 95.

## ELECTRICAL RELAYS –

### Part 21: Vibration, shock, bump and seismic tests on measuring relays and protection equipment – Section 3: Seismic tests

#### 1 Scope and object

This International standard is one of a series of parts specifying the vibration, shock, bump and seismic requirements applicable to electromechanical and static measuring relays and protection equipment, with or without output contacts.

This standard includes two alternative types of seismic tests (see annex A):

- the single axis sine sweep seismic test (method A); and
- the biaxial multi-frequency random seismic test (method B).

During preparation of this standard, it was determined that the number of countries in which the first test method was preferred was about equal to the number of countries in which the second method was preferred. For this reason both methods have been retained, and neither have been identified as reference (or "referee") method.

The requirements of this standard are applicable only to measuring relays and protection equipment in a new condition.

The tests specified in this standard are type tests.

The object of this standard is to state:

- definitions of terms used;
- test conditions;
- standard test severity classes;
- test procedures;
- criteria for acceptance.

#### 2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the editions indicated were valid. All normative documents are subject to revision, and parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

IEC 50: *International Electrotechnical Vocabulary (IEV)*

IEC 68-2-6: 1982, *Environmental testing – Part 2: Tests – Test Fc and guidance: Vibration (sinusoidal)*

IEC 68-2-57: 1989, *Environmental testing – Part 2: Tests – Test Ff: Vibration – Time-history method*

IEC 68-3-3: 1991, *Environmental testing – Part 3: Guidance – Seismic test methods for equipments*

IEC 255-21-1: 1988, *Electrical relays – Part 21: Vibration, shock, bump and seismic tests on measuring relays and protection equipment – Section 1: Vibration tests (sinusoidal)*

IEC 255-21-2: 1988: *Electrical relays – Part 21: Vibration, shock, bump and seismic tests on measuring relays and protection equipment – Section 2: Shock and bump tests*

ISO 2041: 1990, *Vibration and shock – Vocabulary*

### 3 Definitions

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For definitions of general terms not defined in this standard, reference should be made to:

- IEC International Electrotechnical Vocabulary (IEV) (IEC 50)
- IEC 68-2-6, IEC 68-2-57, and IEC 68-3-3;
- IEC relay standards published in the IEC 255 series and in particular IEC 255-21-1 and IEC 255-21-2;
- ISO 2041.

#### 3.1 *Single axis sine sweep seismic test*

A test during which a specimen is submitted to sweeps of sinusoidal vibration in the three orthogonal axes of the specimen in turn, in terms of constant displacement and/or constant acceleration, within a standard frequency range.

NOTE – The term specimen includes any auxiliary part which is an integral functional feature of the measuring relay protection equipment under test.

#### 3.2 *Biaxial test*

A test during which a specimen is submitted to stresses in the horizontal and vertical axes simultaneously.