



SLOVENSKI STANDARD
oSIST prEN IEC 60255-27:2022
01-februar-2022

Merilni releji in zaščitna oprema - 27. del: Zahteve za varnost izdelka

Measuring relays and protection equipment - Part 27: Product safety requirements

Messrelais und Schutzeinrichtungen - Teil 27: Anforderungen an die Produktsicherheit

Relais de mesure et dispositifs de protection - Partie 27: Exigences de sécurité

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ICS:

29.120.70

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95/482/CDV

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IEC TC 95 : MEASURING RELAYS AND PROTECTION EQUIPMENT	
SECRETARIAT: France	SECRETARY: Mr Thierry BARDOU
OF INTEREST TO THE FOLLOWING COMMITTEES: TC 14, TC 17, TC 38, TC 57, TC 77	PROPOSED HORIZONTAL STANDARD: <input type="checkbox"/> Other TC/SCs are requested to indicate their interest, if any, in this CDV to the secretary.
FUNCTIONS CONCERNED: <input type="checkbox"/> EMC <input type="checkbox"/> ENVIRONMENT <input type="checkbox"/> QUALITY ASSURANCE <input checked="" type="checkbox"/> SAFETY	
<input checked="" type="checkbox"/> SUBMITTED FOR CENELEC PARALLEL VOTING <input type="checkbox"/> NOT SUBMITTED FOR CENELEC PARALLEL VOTING	
<p>Attention IEC-CENELEC parallel voting</p> <p>The attention of IEC National Committees, members of CENELEC, is drawn to the fact that this Committee Draft for Vote (CDV) is submitted for parallel voting.</p> <p>The CENELEC members are invited to vote through the CENELEC online voting system.</p>	

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This document is still under study and subject to change. It should not be used for reference purposes.

Recipients of this document are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

TITLE: Measuring relays and protection equipment – Part 27: Product safety requirements

PROPOSED STABILITY DATE: 2028

NOTE FROM TC/SC OFFICERS:

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

MEASURING RELAYS AND PROTECTION EQUIPMENT –

Part 27: Product safety requirements

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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- 9) Attention is drawn to the possibility that some of the elements of this IEC Publication may be the subject of patent rights. IEC shall not be held responsible for identifying any or all such patent rights.

IEC 60255-27 has been prepared by IEC technical committee 95: Measuring relays and protection equipment. It is an International Standard.

This third edition cancels and replaces the second edition published in 2013. This edition constitutes a technical revision.

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

- a) Scope clarified and statement added that all clauses of standard are require not just type tests;
- b) Terminology, definitions and documentation requirements aligned with IEC60255-1;
- c) Ingress protection clarified;
- d) General tidy up, removing conflicting statements and improve readability of document;

- e) Dielectric and impulse tests added to mechanical test requirements;
- f) Sample testing removed
- g) Short time limiting thermal overload added;
- h) Resistance to mechanical stress added;
- i) Low power voltage and current transformers added;
- j) Annex C table updated to align with base standards;
- k) Annex D voltage dependent resistors and radio transmitters added;
- l) Annex G added.

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

Draft	Report on voting
XX/XX/FDIS	XX/XX/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/standardsdev/publications.

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.

The National Committees are requested to note that for this document the stability date is **20XX..**

THIS TEXT IS INCLUDED FOR THE INFORMATION OF THE NATIONAL COMMITTEES AND WILL BE DELETED AT THE PUBLICATION STAGE.

1

INTRODUCTION

2 This international standard specifies the safety requirements that are generally applicable to all
3 equipment within its scope. These requirements may be supplemented by general product
4 safety standards and IEC 60664-1.

5

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MEASURING RELAYS AND PROTECTION EQUIPMENT –

Part 27: Product safety requirements

1 Scope

This part of the IEC 60255 series describes the product safety requirements for measuring relays and protection equipment having a rated AC voltage up to 1 000 V, or a rated DC voltage up to 1 500 V. Above these limits, IEC 60664-1 is applicable for the determination of clearance, creepage distance and withstand test voltage.

This standard specifies essential safety requirements to minimize the risk of fire and hazards caused by electric shock or injury to the user and property, and this standard is intended to describe only product safety requirements, functional performance of the equipment is not covered.

This standard covers all the ways in which the equipment may be mounted and used in cabinets, racks and panels. This standard also applies to auxiliary devices such as shunts, series resistors, transformers, etc., that are used in conjunction with measuring relays and protection equipment and are tested together.

Ancillary equipment such as network switches used in conjunction with measuring relays and protection equipment may need to comply with additional safety requirements.

This standard does not specify the implementation of individual equipment, circuits and components. Equipment shall be designed to meet the requirements of all relevant clauses of the standard and tested to prove compliance where necessary. Type testing alone (as section 9 type tests) does not form a complete safety assessment and does not guarantee that the correct components / materials have been used, this can only be achieved by assessment against all clauses of this standard.

This standard applies to equipment designed to be safe at least under the following environmental conditions

- indoor use;
- altitude up to 2 000 m, in accordance with IEC 60255-1;
- rated ambient temperature range, in accordance with IEC 60255-1;
- maximum external relative humidity, in accordance with IEC 60255-1;
- operating range of auxiliary energizing voltage in accordance with IEC 60255-1;
- applicable overvoltage category;
- applicable pollution degree of the intended environment (pollution degree 2 in most cases).

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 60050 (all parts), *International Electrotechnical Vocabulary* (available at <<http://www.electropedia.org>>

IEC 60085, *Electrical insulation – Thermal evaluation and designation*

- 50 IEC 60127-1, *Miniature fuses - Part 1: Definitions for miniature fuses and general requirements*
51 *for miniature fuse-links*
- 52 IEC 60255-1, *Measuring relays and protection equipment – Part 1: Common requirements*
- 53 IEC 60255-26, *Measuring relays and protection equipment – Part 26: Electromagnetic*
54 *compatibility requirements*
- 55 IEC 60352-1, *Solderless connections – Part 1: Wrapped connections – General requirements,*
56 *test methods and practical guidance*
- 57 IEC 60352-2, *Solderless connections – Part 2: Crimped connections – General requirements,*
58 *test methods and practical guidance*
- 59 IEC 60417, *Graphical symbols for use on equipment.* Available at: [http://www.graphical-](http://www.graphical-symbols.info/equipment)
60 [symbols.info/equipment](http://www.graphical-symbols.info/equipment)
- 61 IEC 60529:1989/AMD2:2013/COR1:2019, *Degrees of protection provided by enclosures (IP*
62 *Code)*
- 63 IEC 60664-1:2020/COR1:2020, *Insulation coordination for equipment within low-voltage*
64 *systems – Part 1: Principles, requirements and tests*
- 65 IEC 60664-3, *Insulation coordination for equipment within low-voltage systems – Part 3: Use of*
66 *coating, potting or moulding for protection against pollution*
- 67 IEC 60695-2-12, *Fire hazard testing - Part 2-12: Glowing/hot-wire based test methods- Glow-*
68 *wire flammability index (GWFI) test method for materials*
- 69 IEC/TS 60695-2-20, *Fire hazard testing – Part 2-20: Glowing/hot-wire based test methods –*
70 *Hot-wire coil ignitability – Apparatus, test method and guidance*
- 71 IEC 60695-11-5, *Fire hazard testing - Part 11-5: Test flames - Needle-flame test method -*
72 *Apparatus, confirmatory test arrangement and guidance*
- 73 IEC 60695-11-10, *Fire hazard testing – Part 11-10: Test flames – 50 W horizontal and vertical*
74 *flame test methods*
- 75 IEC 60825-1, *Safety of laser products – Part 1: Equipment classification and requirements*
- 76 IEC 60990:2016, *Methods of measurement of touch current and protective conductor current*
- 77 IEC 61010-1:2010/AMD1:2016/COR1:2019, *Safety requirements for electrical equipment for*
78 *measurement, control and laboratory use – Part 1: General requirements*
- 79 IEC 61032, *Protection of persons and equipment by enclosures – Probes for verification*
- 80 IEC 61051-2:1991/AMD1:2009, *Varistors for use in electronic equipment - Part 2: Sectional*
81 *specification for surge suppression varistors*
- 82 IEC 61180, *High-voltage test techniques for low-voltage equipment - Definitions, test and*
83 *procedure requirements, test equipment*
- 84 IEC 61508, *Functional safety of electrical/electronic/programmable electronic safety-related*
85 *systems*
- 86 IEC 61558, *Safety of transformers, reactors, power supply units and combinations thereof*
- 87 IEC 61869-1, *Instrument transformers – Part 1: General requirements*
- 88 IEC 61869-6, *Instrument transformers – Part 6: Additional general requirements for low-power*
89 *instrument transformers*

90 IEC 61869-10, *Instrument transformers – Part 10: Additional requirements for low-power*
91 *passive current transformers*

92 IEC 61869-11, *Instrument transformers – Part 11: Additional requirements for low-power*
93 *passive voltage transformers*

94 IEC 62151, *Safety of equipment electrically connected to a telecommunication network*

95 **3 Terms and definitions**

96 For the purposes of this document, the following terms and definitions apply.

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

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

101 **3.1**

102 **accessible part**

103 a part which can be touched under normal use with a standard rigid or jointed test finger as
104 specified in 3.5.1 of IEC 61010-1

105 Note 1 to entry: Circuits intended to be connected to an external accessible circuit shall be considered as accessible
106 conductive parts, for example wired network ports.

107 **3.2**

108 **adjacent circuits**

109 **independent circuits**

110 electric circuits which are separated from the considered circuit by applicable insulation

111 **3.3**

112 **ambient temperature**

113 **ambient air temperature**

114 the temperature, determined under prescribed conditions, of the air surrounding the complete
115 equipment

116 Note 1 to entry: For equipment installed inside an enclosure, it is the temperature of the air outside the enclosure.

117 Note 2 to entry: The ambient temperature is measured at half the distance from any neighbouring equipment, but
118 not more than 300 mm distance from the equipment case, at middle height of the equipment, protected from direct
119 heat radiation from the equipment.

120 [SOURCE: IEC 60050-441:2000, 441-11-13, modified – "switching device or fuse" has been
121 replaced by "equipment" and a second note to entry has been added.]

122 **3.4**

123 **barrier**

124 **electrically protective barrier**

125 part providing protection against direct contact from any usual direction of access that is firmly
126 secured in place in such a way that it may only be removed by the use of a tool

127 [SOURCE: IEC 60050-826:2004, 826-12-23, modified – the end of the definition has been
128 added "that is firmly secured in place in such a way that it may only be removed by the use of
129 a tool."]

130 **3.5**

131 **basic insulation**

132 insulation of hazardous-live-parts to provide basic protection

133 [SOURCE: IEC 60050-826:2004, 826-12-14, modified – the word "which" is replaced by "to"
134 and Note to entry removed.]