SVENSK STANDARD SS-EN 60255-27

Fastställd	Utgåva	Sida	Ansvarig kommitté
2014-06-11	2	1 (1+96)	SEK TK 94/95

Mätande reläer och skyddsutrustningar – Del 27: Fordringar avseende produktsäkerhet

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

Som svensk standard gäller europastandarden EN 60255-27:2014. Den svenska standarden innehåller den officiella engelska språkversionen av EN 60255-27:2014.

Nationellt förord

Europastandarden EN 60255-27:2014

består av:

– **europastandardens ikraftsättningsdokument,** utarbetat inom CENELEC
– **IEC 60255-27, Second edition, 2013 - Measuring relays and protection equipment - Part 27: Product safety requirements**

utarbetad inom International Electrotechnical Commission, IEC.

Tidigare fastställd svensk standard SS-EN 60255-5, utgåva 1, 2001 och SS-EN 60255-27, utgåva 1, 2006, gäller ej fr o m 2016-11-19.

ICS 29.120.70

Denna standard är fastställd av SEK Svensk Elstandard,
som också kan lämna upplysningar om **sakinnehållet** i standarden.
Postadress: Box 1284, 164 29 KISTA
Telefon: 08 - 444 14 00.
E-post: sek@elstandard.se. Internet: www.elstandard.se

Standarder underlättar utvecklingen och höjer elsäkerheten

Det finns många fördelar med att ha gemensamma tekniska regler för bl a säkerhet, prestanda, dokumentation, utförande och skötsel av elprodukter, elanläggningar och metoder. Genom att utforma sådana standarder blir säkerhetskraven tydliga och utvecklingskostnaderna rimliga samtidigt som marknadens acceptans för produkten eller tjänsten ökar.

Många standarder inom elområdet beskriver tekniska lösningar och metoder som åstadkommer den elsäkerhet som föreskrivs av svenska myndigheter och av EU.

SEK är Sveriges röst i standardiseringsarbetet inom elområdet

SEK Svensk Elstandard svarar för standardiseringen inom elområdet i Sverige och samordnar svensk medverkan i internationell och europeisk standardisering. SEK är en ideell organisation med frivilligt deltagande från svenska myndigheter, företag och organisationer som vill medverka till och påverka utformningen av tekniska regler inom elektrotekniken.

SEK samordnar svenska intressenters medverkan i SEKs tekniska kommittéer och stödjer svenska experters medverkan i internationella och europeiska projekt.

Stora delar av arbetet sker internationellt

Utformningen av standarder sker i allt väsentligt i internationellt och europeiskt samarbete. SEK är svensk nationalkommitté av International Electrotechnical Commission (IEC) och Comité Européen de Normalisation Electrotechnique (CENELEC).

Standardiseringsarbetet inom SEK är organiserat i referensgrupper bestående av ett antal tekniska kommittéer som speglar hur arbetet inom IEC och CENELEC är organiserat.

Arbetet i de tekniska kommittéerna är öppet för alla svenska organisationer, företag, institutioner, myndigheter och statliga verk. Den årliga avgiften för deltagandet och intäkter från försäljning finansierar SEKs standardiseringsverksamhet och medlemsavgift till IEC och CENELEC.

Var med och påverka!

Den som deltar i SEKs tekniska kommittéarbete har möjlighet att påverka framtida standarder och får tidig tillgång till information och dokumentation om utvecklingen inom sitt teknikområde. Arbetet och kontakterna med kollegor, kunder och konkurrenter kan gynnsamt påverka enskilda företags affärsutveckling och bidrar till deltagarnas egen kompetensutveckling.

Du som vill dra nytta av dessa möjligheter är välkommen att kontakta SEKs kansli för mer information.

SEK Svensk Elstandard
Box 1284
164 29 Kista
Tel 08-444 14 00
www.elstandard.se

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 60255-27

March 2014

ICS 29.120.70

Supersedes EN 60255-5:2001, EN 60255-27:2005

English version

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

(IEC 60255-27:2013)

Relais de mesure et dispositifs de protection -
Partie 27: Exigences de sécurité
(CEI 60255-27:2013)

Messrelais und Schutzeinrichtungen -
Teil 27: Anforderungen an die Produktsicherheit
(IEC 60255-27:2013)

CENELEC

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

CEN-CENELEC Management Centre: Avenue Marnix 17, B - 1000 Brussels

Ref. No. EN 60255-27:2014 E

SEK Svensk Elstandard

Foreword

The text of document 95/316/FDIS, future edition 2 of IEC 60255-27, prepared by IEC/TC 95 "Measuring relays and protection equipment" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 60255-27:2014.

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)	2014-09-28
• latest date by which the national standards conflicting with the document have to be withdrawn	(dow)	2016-11-19

This document supersedes EN 60255-5:2001 and EN 60255-27:2005.

EN 60255-27:2014 includes the following significant technical changes with respect to EN 60255-27:2005:

a) The removal of tables and diagrams which are from other standards and referring instead directly to the source standard.
b) All aspects of EN 60255-5 have been covered and this standard can be withdrawn.
c) Ambiguity within the standard has been removed.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CENELEC [and/or CEN] shall not be held responsible for identifying any or all such patent rights.

This standard covers the Principle Elements of the Safety Objectives for Electrical Equipment Designed for Use within Certain Voltage Limits (LVD - 2006/95/EC).

Endorsement notice

The text of the International Standard IEC 60255-27:2013 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 60068-3-4:2001	NOTE Harmonized in EN 60068-3-4:2001 (not modified)
IEC 60112:2003	NOTE Harmonized in EN 60112:2003 (not modified)
IEC 60127-1	NOTE Harmonized in EN 60127-1
IEC 60255-5:2000	NOTE Harmonized in EN 60255-5:2000 (not modified)
IEC 60384-14:2013	NOTE Harmonized in EN 60384-14:2013 (not modified)
IEC 60695-2-12	NOTE Harmonized in EN 60695-2-12
IEC 60695-2-13:2010	NOTE Harmonized in EN 60695-2-13:2010 (not modified)
IEC 61558 (series)	NOTE Harmonized in EN 61558 (series)
IEC 61810-1:2008	NOTE Harmonized in EN 61810-1:2008 (not modified)

Annex ZA
(normative)
Normative references to international publications with their corresponding European publications

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. 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.

Publication	Year	Title	EN/HD	Year
IEC 60050 (series)		International Electrotechnical Vocabulary - Part 103: Mathematics - Functions	-	
IEC 60085		Electrical insulation - Thermal evaluation and designation	EN 60085	
IEC 60255-1		Measuring relays and protection equipment - Part 1: Common requirements	EN 60255-1	
IEC 60255-21-1		Electrical relays - Part 21: Vibration, shock, bump and seismic tests on measuring relays and protection equipment - Section 1: Vibration tests (sinusoidal)	EN 60255-21-1	
IEC 60255-21-2		Electrical relays - Part 21: Vibration, shock, bump and seismic tests on measuring relays and protection equipment - Section 2: Shock and bump tests	EN 60255-21-2	
IEC 60255-21-3		Electrical relays - Part 21: Vibration, shock, bump and seismic tests on measuring relays and protection equipment - Section 3: Seismic tests	EN 60255-21-3	
IEC 60255-26	2013	Measuring relays and protection equipment - Part 26: Electromagnetic compatibility requirements	EN 60255-26 + AC:2013	2013
IEC 60352-1		Solderless connections - Part 1: Wrapped connections - General requirements, test methods and practical guidance	EN 60352-1	
IEC 60352-2		Solderless connections - Part 2: Crimped connections - General requirements, test methods and practical guidance	EN 60352-2	
IEC 60417	Data-base	Graphical symbols for use on equipment		
IEC 60529 +A1	1989 1999	Degrees of protection provided by enclosures (IP Code)	EN 60529 + corr. May +A1	1991 1993 2000
IEC 60664-1	2007	Insulation coordination for equipment within low-voltage systems - Part 1: Principles, requirements and tests	EN 60664-1	2007
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

Publication	Year	Title	EN/HD	Year
IEC/TS 60695-2-20		Fire hazard testing - Part 2-20: Glowing/hot wire based test methods - Hot-wire coil ignitability - Apparatus, test method and guidance	-	-
IEC 60695-11-10		Fire hazard testing - Part 11-10: Test flames - 50 W horizontal and vertical flame test methods	EN 60695-11-10	
IEC 60825-1		Safety of laser products - Part 1: Equipment classification and requirements	EN 60825-1	
IEC 60990	1999	Methods of measurement of touch current and protective conductor current	EN 60990	1999
IEC 61010-1	2010	Safety requirements for electrical equipment for measurement, control and laboratory use - Part 1: General requirements	EN 61010-1	2010
IEC 61032		Protection of persons and equipment by enclosures - Probes for verification	EN 61032	
IEC 61140		Protection against electric shock - Common aspects for installation and equipment	EN 61140	
IEC 61180-1	1992	High-voltage test techniques for low-voltage equipment - Part 1: Definitions, test and procedure requirements	EN 61180-1	1994
IEC 61180-2		High-voltage test techniques for low-voltage equipment - Part 2: Test equipment	EN 61180-2	
IEC 62151		Safety of equipment electrically connected to a telecommunication network	-	-
ISO 7000		Graphical symbols for use on equipment - Registered symbols	-	-

CONTENTS

INTRODUCTION

In order to demonstrate that the equipment is safe, it was previously necessary to refer to general safety standards such as IEC 61010-1 in addition to IEC 60664-1.

These general safety standards specify requirements for general product types or product families in order to reduce the risk of fire, electric shock or injury to the user. The product types do not include measuring relays and protection equipment. These standards also take into account single-fault conditions.

Reference to all these various standards created confusion due to conflicting requirements, for example, different clearances, creepage distances and test voltages etc., for the same rated voltages.

The aim of this standard is:

- to remove confusion due to conflicting requirements between existing standards;
- to achieve a uniform approach throughout the international industry for measuring relays and protection equipment.

This product safety standard for measuring relays and protection equipment takes the general product safety standards and IEC 60664-1 as the base, defining those issues specific to measuring relays and protection equipment.

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 a.c. voltage up to 1 000 V with a rated frequency up to 65 Hz, or a rated d.c. 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 details essential safety requirements to minimize the risk of fire and hazards caused by electric shock or injury to the user.

This standard does not cover the safety requirements of installations. It does cover all the ways in which the equipment may be mounted and used in cubicles, racks and panels, and also retesting. 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 used in conjunction with measuring relays and protection equipment may need to comply with additional safety requirements.

This standard is intended to describe only product safety requirements; therefore, functional performance of the equipment is not covered.

Functional safety requirements, including EMC functional safety, are not covered by this standard. Functional safety risk analysis is not within the scope of this product safety standard.

This standard does not specify the implementation of individual equipment, circuits and components.

The object of this standard is to have a comprehensive standard that covers all aspects of product safety and the related type and routine tests, for measuring relays and protection equipment.

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;
– external operating temperature range, in accordance with IEC 60255-1;
– maximum external relative humidity 95 %, non-condensing, in accordance with IEC 60255-1;
– supply fluctuations in accordance with IEC 60255-1;
– applicable supply overvoltage category;
– external pollution degree 1 and external pollution degree 2.

The equipment will normally be installed in a restricted access area within a power station, substation or industrial/retail environment. The environmental conditions specified for the equipment in IEC 60255-1 apply. This standard considers the normal environmental

conditions of corrosion caused by humidity but does not cover corrosion by atmospheric pollution.

It is assumed that access to the equipment during installation, maintenance, normal service and decommissioning is restricted to users aware of working procedures necessary to ensure safety.

This product safety standard takes precedence over general standards for matters of safety.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. 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*

IEC 60255-1, *Measuring relays and protection equipment – Part 1: Common requirements*

IEC 60255-21-1, *Electrical relays – Part 21: Vibration, shock, bump and seismic tests on measuring relays and protection equipment – Section One: Vibration tests (sinusoidal)*

IEC 60255-21-2, *Electrical relays – Part 21: Vibration, shock, bump and seismic tests on measuring relays and protection equipment – Section Two: Shock and bump tests*

IEC 60255-21-3, *Electrical relays – Part 21: Vibration, shock, bump and seismic tests on measuring relays and protection equipment – Section 3: Seismic tests*

IEC 60255-26:2013, *Measuring relays and protection equipment – Part 26: Electromagnetic compatibility requirements*

IEC 60352-1, *Solderless connections – Part 1: Wrapped connections – General requirements, test methods and practical guidance*

IEC 60352-2, *Solderless connections – Part 2: Crimped connections – General requirements, test methods and practical guidance*

IEC 60417, *Graphical symbols for use on equipment.* Available at: http://www.graphical-symbols.info/equipment

IEC 60529:1989, *Degrees of protection provided by enclosures (IP Code)*
Amendment 1:1999[1]

IEC 60664-1:2007, *Insulation coordination for equipment within low-voltage systems – Part 1: Principles, requirements and tests*

IEC 60664-3:2003, *Insulation coordination for equipment within low-voltage systems – Part 3: Use of coating, potting or moulding for protection against pollution*
Amendment 1:2010

1 There exists a consolidated Edition 2.1 (2001) that includes Edition 2.0 and its Amendment 1.

IEC/TS 60695-2-20[2], *Fire hazard testing – Part 2-20: Glowing/hot-wire based test methods – Hot-wire coil ignitability – Apparatus, test method and guidance*

IEC 60695-11-10, *Fire hazard testing – Part 11-10: Test flames – 50 W horizontal and vertical flame test methods*

IEC 60825-1, *Safety of laser products – Part 1: Equipment classification and requirements*

IEC 60990:1999, *Methods of measurement of touch current and protective conductor current*

IEC 61010-1:2010, *Safety requirements for electrical equipment for measurement, control and laboratory use – Part 1: General requirements*

IEC 61032, *Protection of persons and equipment by enclosures – Probes for verification*

IEC 61140, *Protection against electric shock – Common aspects for installation and equipment*

IEC 61180-1:1992, *High-voltage test techniques for low-voltage equipment – Part 1: Definitions, test and procedure requirements*

IEC 61180-2, *High-voltage test techniques for low-voltage equipment – Part 2: Test equipment*

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

ISO 7000, *Graphical symbols for use on equipment – Index and synopsis.* Available at: http://www.graphical-symbols.info/equipment

2 Edition 3.0 currently under preparation.