SLOVENSKI STANDARD
SIST EN IEC 63052:2021

01-december-2021

Nadomešča:
SIST EN 50550:2011
SIST EN 50550:2011/A1:2014
SIST EN 50550:2011/AC:2012

Močnostna frekvenčna prenapetostna zaščitna naprava (POP) za gospodinjsko in podobno uporabo (IEC 63052:2019 + COR1:2019)

Power frequency overvoltage protective devices (POPs) for household and similar applications (IEC 63052:2019 + COR1:2019)

Schutzeinrichtungen gegen netzfrequente Überspannungen für Hausinstallationen und für ähnliche Anwendungen (POP) (IEC 63052:2019 + COR1:2019)

SIST Preview
(https://ecommerce.sist.si)
SIST EN IEC 63052:2021
https://ecommerce.sist.si/catalog/standards/sist/01fa9194-9d12-45dd-892d-e623f84dcbd5/sist-en-iec-63052-2021

Dispositifs de protection contre les surtensions à fréquence industrielle (POP) pour les applications domestiques et similaires (IEC 63052:2019 + COR1:2019)

Ta slovenski standard je istoveten z: **EN IEC 63052:2021**

ICS:

29.120.50	Varovalke in druga nadtokovna zaščita	Fuses and other overcurrent protection devices

SIST EN IEC 63052:2021 **en,fr,de**

2003-01.Slovenski inštitut za standardizacijo. Razmnoževanje celote ali delov tega standarda ni dovoljeno.

SIST Preview
(https://ecommerce.sist.si)

SIST EN IEC 63052:2021
https://ecommerce.sist.si/catalog/standards/sist/01fa9194-9d12-45dd-892d-e623f84dcbd5/sist-en-iec-63052-2021

SIST EN IEC 63052:2021

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN IEC 63052

August 2021

ICS 29.120.50

Supersedes EN 50550:2011 and all of its amendments and corrigenda (if any)

English Version

Power frequency overvoltage protective devices (POPs) for household and similar applications (IEC 63052:2019 + COR1:2019)

Dispositifs de protection contre les surtensions à fréquence industrielle (POP) pour les applications domestiques et similaires
(IEC 63052:2019 + COR1:2019)

Schutzeinrichtungen gegen netzfrequente Überspannungen für Hausinstallationen und für ähnliche Anwendungen (POP)
(IEC 63052:2019 + COR1:2019)

This European Standard was approved by CENELEC on 2019-09-25. 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 CEN-CENELEC Management Centre or to any CENELEC member.

SIST Preview
(https://standards.iteh.ai)

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 CEN-CENELEC Management Centre has the same status as the official versions.

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

SIST EN IEC 63052:2021
https://standards.iteh.ai/catalog/standards/sist/...



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

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

© 2021 CENELEC All rights of exploitation in any form and by any means reserved worldwide for CENELEC Members.

SIST EN IEC 63052:2021

European foreword

The text of document 23E/1131/FDIS, future edition 1 of IEC 63052, 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 approved by CENELEC as EN IEC 63052:2021.

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) 2022-02-20
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2024-08-20

This document supersedes EN 50550:2011 and all of its amendments and corrigenda (if any).

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

This document has been prepared under a Standardization Request given to CENELEC by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive(s) / Regulation(s).

For relationship with EU Directive(s) / Regulation(s), see informative Annex ZZ, which is an integral part of this document.

SIST Preview
(https://ecommerce.sist.si)

Any feedback and questions on this document should be directed to the users' national committee. A complete listing of these bodies can be found on the CENELEC website.

SIST EN IEC 63052:2021
https://ecommerce.sist.si/catalog/standards/sist/...92d-e623f84dcbd5/sist-en-iec-63052-2021

Endorsement notice

The text of the International Standard IEC 63052:2019 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 60060-2	NOTE	Harmonized as EN 60060-2
IEC 60068-2-30:2005	NOTE	Harmonized as EN 60068-2-30:2005 (not modified)
IEC 60068-3-4:2001	NOTE	Harmonized as EN 60068-3-4:2002 (not modified)
IEC 60085	NOTE	Harmonized as EN 60085
IEC 60112	NOTE	Harmonized as EN IEC 60112
IEC 60364-4-41	NOTE	Harmonized as HD 60364-4-41
IEC 60364-4-44	NOTE	Harmonized as HD 60364-4-444

SIST EN IEC 63052:2021

Annex ZA
(normative)

Normative references to international publications with their corresponding European publications

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.

NOTE 1 Where an International Publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

NOTE 2 Up-to-date information on the latest versions of the European Standards listed in this annex is available here: www.cenelec.eu.

Publication	Year	Title	EN/HD	Year
IEC 60065 (mod)	2014	Audio, video and similar electronic apparatus - Safety requirements	EN 60065	2014
-	-		+ A11	2017
IEC 60269	series	Low-voltage fuses	EN 60269	series
IEC 60364	series	Low-voltage electrical installations	HD 60364	series
IEC 60384-14	2013	Fixed capacitors for use in electronic equipment - Part 14: Sectional specification - Fixed capacitors for electromagnetic interference suppression and connection to the supply mains	EN 60384-14	2013
+ A1	2016		+ A1	2016
IEC 60417	-	Graphical symbols for use on equipment	-	
IEC 60529	1989	Degrees of protection provided by enclosures (IP Code)	EN 60529	1991
+ A1	1999		+ A1	2000
+ A2	2013		+ A2	2013
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	2016	Insulation coordination for equipment within low-voltage systems - Part 3: Use of coating, potting or moulding for protection against pollution	EN 60664-3	2017
IEC 60695-2-10	2013	Fire hazard testing - Part 2-10: Glowing/hot-wire based test methods - Glow-wire apparatus and common test procedure	EN 60695-2-10	2013
IEC 60695-2-11	2014	Fire hazard testing - Part 2-11: Glowing/hot-wire based test methods - Glow-wire flammability test method for end-products (GWEPT)	EN 60695-2-11	2014

SIST Preview
(https://ecommerce.sist.si)
https://ecommerce.sist.si/catalog/standards/sist/01fa9194-9d12-45dd-892d-e623f84dcbd5/sist-en-iec-63052-2021

SIST EN IEC 63052:2021

Publication	Year	Title	EN/HD	Year
IEC 60898-1 (mod)	2015	Electrical accessories - Circuit-breakers for overcurrent protection for household and similar installations - Part 1: Circuit-breakers for a.c. operation	EN 60898-1	2019
IEC 60898-2	2016	Electrical accessories - Circuit-breakers for overcurrent protection for household and similar installations - Part 2: Circuit-breakers for AC and DC operation	EN 60898-2	2006
IEC 61000-4-2	2008	Electromagnetic compatibility (EMC) - Part 4-2: Testing and measurement techniques - Electrostatic discharge immunity test	EN 61000-4-2	2009
IEC 61000-4-3	2020	Electromagnetic compatibility (EMC) - Part 4-3: Testing and measurement techniques - Radiated, radio-frequency, electromagnetic field immunity test	EN 61004-4-3	2020
IEC 61000-4-4	2012	Electromagnetic compatibility (EMC) - Part 4-4: Testing and measurement techniques - Electrical fast transient/burst immunity test	EN 61000-4-4	2012
IEC 61000-4-5	2014	Electromagnetic compatibility (EMC) - Part 4-5: Testing and measurement techniques - Surge immunity test	EN 61000-4-5	2014
+ A1	2017		+ A1	2017
IEC 61000-4-6	2013	Electromagnetic compatibility (EMC) - Part 4-6: Testing and measurement techniques - Immunity to conducted disturbances, induced by radio-frequency fields	EN 61000-4-6	2014
IEC 61000-4-16	2015	Electromagnetic compatibility (EMC) - Part 4-16: Testing and measurement techniques - Test for immunity to conducted, common mode disturbances in the frequency range 0 Hz to 150 kHz	EN 61000-4-16	2016
IEC 61000-6-3	2020	Electromagnetic compatibility (EMC) - Part 6-3: Generic standards - Emission standard for residential, commercial and light-industrial environments	EN 61000-6-3	2007
-	-		+ A1	2011
IEC 61008-1 (mod)	2010	Residual current operated circuit-breakers without integral overcurrent protection for household and similar uses (RCCBs) - Part 1: General rules	EN 61008-1	2012
+ A1 (mod)	2012		+ A1	2014
+ A2 (mod)	2013		+ A2	2014
-	-		+ A11	2015
-	-		+ A12	2017

SIST Preview
(https://ecommerce.sist.si)
https://ecommerce.sist.si/catalog/standards/sist/...-en-iec-63052-2021

SIST EN IEC 63052:2021

Publication	Year	Title	EN/HD	Year
IEC 61009-1 (mod)	2010	Residual current operated circuit-breakers with integral overcurrent protection for household and similar uses (RCBOs) - Part 1: General rules	EN 61009-1	2012
+ A1 (mod)	2012		+ A1	2014
+ A2 (mod)	2013		+ A2	2014
-	-		+ A11	2015
-	-		+ A12	2016
IEC 61249-2	series	Materials for printed boards and other interconnecting structures	EN 61249-2	series
IEC 61543	1995	Residual current-operated protective devices (RCDs) for household and similar use - Electromagnetic compatibility	EN 61543	1995
+ A1	2004		-	-
-	-		+ corrigendum Dec.	1997
-	-		+ A11	2003
-	-		+ A12	2005
+ A2	2005		+ A2	2006
IEC 61558-1	2017		EN IEC 61558-1	2019
IEC 61558-2	series	Safety of power transformers, power supplies, reactors and similar products	EN 61558-2	series
IEC 62423	2009	Type F and type B residual current operated circuit-breakers with and without integral overcurrent protection for household and similar uses	EN 62423	2012
IEC 62873-2	2016	Residual current operated circuit-breakers for household and similar use – Part 2: Residual current devices (RCDs) – Vocabulary	-	-
IEC 62873-3-1	2016	Residual current operated circuit-breakers for household and similar use – Part 3-1: Particular requirements for RCDs with screwless-type terminals for external copper conductors	-	-
IEC 62873-3-2	2016	Residual current operated circuit-breakers for household and similar use – Part 3-2: Particular requirements for RCDs with flat quick-connect terminations	-	-
IEC 62873-3-3	2016	Residual current operated circuit-breakers for household and similar use – Part 3-3: Specific requirements for RCDs with screw-type terminals for external untreated aluminium conductors and with aluminium screw-type terminals for use with copper or with aluminium conductors	-	-

SIST Preview
(https://ecommerce.sist.si)
SIST EN IEC 63052:2021
https://ecommerce.sist.si/catalog/standards/sist/01fa9194-9d12-45dd-892d-e623f84dcbd5/sist-en-iec-63052-2021

SIST EN IEC 63052:2021

Publication	Year	Title	EN/HD	Year
ISO 306	2014	Plastics - Thermoplastic materials - Determination of Vicat softening temperature (VST)	EN ISO 306	2014
CISPR 14-1	2016	Electromagnetic compatibility - Requirements for household appliances, electric tools and similar apparatus - Part 1: Emission	EN 55014-1	2017
CISPR 32	2015	Electromagnetic compatibility of multimedia equipment - Emission requirements	EN 55032	2015
+ A1	2019		-	-
-	-		+ A11	2020

SIST Preview
(https://ecommerce.sist.si)
SIST EN IEC 63052:2021
https://ecommerce.sist.si/catalog/standards/sist/01fa9194-9d12-45dd-892d-e623f84dcbd5/sist-en-iec-63052-2021

SIST EN IEC 63052:2021

Annex ZZ
(informative)

Relationship between this European standard and the safety objectives of Directive 2014/35/EU [2014 OJ L96] aimed to be covered

This European Standard has been prepared under a Commission's standardization request relating to harmonized standards in the field of the Low Voltage Directive, M/511, to provide one voluntary means of conforming to safety objectives of Directive 2014/35/EU of the European Parliament and of the Council of 26 February 2014 on the harmonisation of the laws of the Member States relating to the making available on the market of electrical equipment designed for use within certain voltage limits [2014 OJ L96].

Once this standard is cited in the Official Journal of the European Union under that Directive, compliance with the normative clauses of this standard given in Table ZZ.1 confers, within the limits of the scope of this standard, a presumption of conformity with the corresponding safety objectives of that Directive, and associated EFTA regulations.

Table ZZ.1 — Correspondence between this European standard and Annex I of Directive 2014/35/EU [2014 OJ L96]

Safety objectives of Directive 2014/35/EU	Clause(s) / sub-clause(s) of this EN	Remarks / Notes
(1)(a)	1, 2, 3, 4, 5, 6, 9.3	
(1)(b)	8.1, 8.2, 9.4, 9.5	
(1)(c)	7, 8.6, 8.12, 8.13, 9.1, 9.2, 9.9, 9.15, 9.16	
(2) (a)	8.3, 8.7, 8.13, 9.6, 9.10, 9.16	
(2) (b)	8.5, 8.6, 8.7, 8.8, , 8.14, 9.8, 9.9, 9.10, 9.11, 9.17, Annex A, Annex C	
(2) (c)	8.2.2, 9.1.1	
(2) (d)	8.2.3, 8.4, 9.7, 9.19, 9.20, 9.7, Annex B	
(3) (a)	8.9, 9.12	
(3) (b)	8.10, 8.11, 8.15, 9.13, 9.14, 9.18	
(3) (c)	8.8, 9.11, Annex C	

SIST Preview
(https://eCommerce.sist.si)
SIST EN IEC 63052:2021
https://eCommerce.sist.si/catalog/standards/sist/...92d-e623f84dcbd5/sist-en-iec-63052-2021

WARNING 1 — Presumption of conformity stays valid only as long as a reference to this European standard is maintained in the list published in the Official Journal of the European Union. Users of this standard should consult frequently the latest list published in the Official Journal of the European Union.

WARNING 2 — Other Union legislation may be applicable to the product(s) falling within the scope of this standard.

SIST Preview
(https://ecommerce.sist.si)

SIST EN IEC 63052:2021
https://ecommerce.sist.si/catalog/standards/sist/01fa9194-9d12-45dd-892d-e623f84dcbd5/sist-en-iec-63052-2021

SIST EN IEC 63052:2021

IEC 63052

Edition 1.0 2019-08

INTERNATIONAL STANDARD

NORME INTERNATIONALE

colour inside

Power frequency overvoltage protection devices (POPs) for household and similar applications

SIST Preview
(https://ecommerce.sist.si)

Dispositifs de protection contre les surtensions à fréquence industrielle (POP) pour les applications domestiques et similaires

SIST EN IEC 63052:2021
https://ecommerce.sist.si/catalog/standards/sist/01fa9194-9d12-45dd-892d-e623f84dcbd5/sist-en-iec-63052-2021

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

COMMISSION
ELECTROTECHNIQUE
INTERNATIONALE

ICS 29.120.50

ISBN 978-2-8322-7268-8

Warning! Make sure that you obtained this publication from an authorized distributor.
Attention! Veuillez vous assurer que vous avez obtenu cette publication via un distributeur agréé.

® Registered trademark of the International Electrotechnical Commission
Marque déposée de la Commission Electrotechnique Internationale

SIST EN IEC 63052:2021

CONTENTS

FOREWORD 8
1 Scope 10
2 Normative references 10
3 Terms, definitions and abbreviated terms 12
3.1 Terms and definitions 12
3.2 Abbreviated terms 14
4 Classification 15
4.1 According to the method of construction 15
4.2 According to the number of monitored line-to-neutral conductor voltages 15
4.3 According to the method of mounting 15
5 Characteristics of POPs 15
5.1 Summary of characteristics 15
5.2 Rated quantities and other characteristics 16
5.2.1 Rated voltage 16
5.2.2 Rated current (I_n) 16
5.2.3 Rated frequency 16
5.2.4 Rated making and breaking capacity (I_m) 16
5.2.5 Rated making and breaking capacity on one pole (I_{m1}) 16
5.3 Standard and preferred values 16
5.3.1 Preferred values of rated voltage (U_n) 16
5.3.2 Preferred values of rated current (I_n) 17
5.3.3 Preferred values of rated frequency 17
5.3.4 Minimum value of the rated making and breaking capacity (I_m) 17
5.3.5 Minimum value of the rated making and breaking capacity on one pole (I_{m1}) 17
5.3.6 Standard and preferred values of the rated conditional short-circuit current (I_{nc}) and standard and preferred values of the rated conditional short-circuit current for one pole (I_{nc1}) 17
5.3.7 Limit values of the break times and non-actuating times 18
5.3.8 Standard value of rated impulse withstand voltage (U_{imp}) 18
5.4 Coordination with short-circuit protective devices (SCPDs) 18
5.4.1 General 18
5.4.2 Rated conditional short-circuit current (I_{nc}) and rated conditional short-circuit on one pole (I_{nc1}) 19
5.4.3 Operating characteristics of opening means for POPs according to 4.1.4 19
6 Marking and other product information 19
6.1 Marking 19
6.2 Additional marking for POPs according to 4.1.4 22
6.2.1 Marking of POPs 22
6.2.2 Instructions for wiring and operation 22
7 Standard conditions for operation in service and for installation 22
7.1 Standard conditions 22
7.2 Conditions of installation 23
7.3 Pollution degree 23
8 Requirements for construction and operation 23
8.1 General 23

SIST Preview
(https://standards.iteh.ai)
https://ecommerce.sist.si/catalog/standards/sist/en-iec-63052-2021

SIST EN IEC 63052:2021

8.2 Mechanical design 24
8.2.1 General 24
8.2.2 Mechanism 25
8.2.3 Clearances and creepage distances 26
8.2.4 Screws, current-carrying parts and connections 29
8.2.5 Terminals for external conductors 30
8.3 Protection against electric shock 32
8.4 Dielectric properties and isolating capability 33
8.5 Temperature-rise 33
8.5.1 Temperature-rise limits 33
8.5.2 Ambient air temperature 34
8.6 Operating characteristics 34
8.6.1 Operating characteristics of the MPD part 34
8.6.2 Operating characteristics of the POP 34
8.7 Mechanical and electrical endurance 34
8.8 Performance at short-circuit currents 35
8.9 Resistance to mechanical shock and impact 35
8.10 Resistance to heat 35
8.11 Resistance to abnormal heat and to fire 35
8.12 Safety performance of overstressed POPs 35
8.13 Behaviour of POPs in case of current surges caused by impulse voltages 35
8.14 Reliability 35
8.15 Electromagnetic compatibility (EMC) 35
9 Testing procedure 36
9.1 General 36
9.1.1 General testing procedure for the different type of POPs 36
9.1.2 Characteristics of POPs are checked by means of type tests 37
9.1.3 For certification purposes, type tests are carried out in test sequences 38
9.2 Test conditions 38
9.3 Test of indelibility of marking 39
9.4 Test of reliability of screws, current-carrying parts and connections 39
9.5 Test of reliability of terminals for external conductors 41
9.6 Verification of protection against electric shock 42
9.7 Test of dielectric properties 42
9.7.1 Resistance to humidity 42
9.7.2 Insulation resistance of the main circuit 43
9.7.3 Dielectric strength of the main circuit 44
9.7.4 Insulation resistance and dielectric strength of auxiliary circuits 44
9.7.5 Capability of control circuits connected to the main circuit withstanding high DC voltages due to insulation measurements 45
9.7.6 Verification of impulse withstand voltages and of leakage current across open contacts 46
9.8 Test of temperature-rise 48
9.8.1 Ambient air temperature 48
9.8.2 Test procedure 48
9.8.3 Measurement of the temperature of parts 49
9.8.4 Temperature-rise of a part 49
9.9 Verification of the operating characteristics 49
9.9.1 Test circuit 49

SIST Preview
(https://ecommerce.sist.si)
https://ecommerce.sist.si/catalog/standards/sist/en-iec-63052-2021

SIST EN IEC 63052:2021

9.9.2 Off-load characteristic tests with sinusoidal alternating voltages at the reference temperature of 20 °C ± 5 °C 49
9.9.3 Test of the effect of the ambient air temperature on the operating characteristics 50
9.10 Verification of mechanical and electrical endurance 50
9.10.1 General test conditions 50
9.10.2 Test procedure 50
9.10.3 Additional test for POP according to 4.1.4 51
9.10.4 Condition of the POP after the test 51
9.11 Verification of the behaviour of the POP under short-circuit conditions 52
9.11.1 General 52
9.11.2 Short-circuit tests for POPs according to 4.1.4 52
9.12 Verification of resistance to mechanical shock and impact 59
9.12.1 Mechanical shock 59
9.12.2 Mechanical impact 60
9.13 Test of resistance to heat 62
9.13.1 Test on complete product 62
9.13.2 Ball pressure test 63
9.14 Test of resistance to abnormal heat and to fire 64
9.15 Test of safety performance of overstressed POPs 65
9.16 Verification of behaviour of POPs in case of current surges caused by impulse voltages 65
9.16.1 General 65
9.16.2 Verification of behaviour at surge currents up to 3 000 A (8/20 µs surge current test) 66
9.17 Verification of ageing of electronic components 66
9.18 Electromagnetic compatibility (EMC) 67
9.18.1 General 67
9.18.2 EMC tests covered by other clauses/subclauses of the present document 67
9.18.3 EMC tests to be performed 67
9.18.4 POPs performance criteria 69
9.18.5 Emission tests 70
9.19 Tests of creepage distances and clearances for electronic circuits (abnormal conditions) 71
9.19.1 General 71
9.19.2 Abnormal conditions 71
9.19.3 Test procedure 71
9.20 Requirements for capacitors and specific resistors and inductors used in electronic circuits 73
9.20.1 General 73
9.20.2 Capacitors 73
9.20.3 Resistors 74
9.20.4 Inductors and windings 74
Annex A (normative) Test sequences and number of samples to be submitted for certification purposes 91
A.1 Test sequences 91
A.2 Number of samples to be submitted for full test procedure 96
A.3 Number of samples to be submitted for simplified test procedures in case of simultaneous submission of a range of POPs of the same fundamental design 96

SIST Preview
(https://ecommerce.sist.si)
IEC 63052:2021
https://ecommerce.sist.si/catalog/standards/sist/01fe9194-9d12-45dd-892d-a623f84dcbd5/sist-en-iec-63052-2021

SIST EN IEC 63052:2021

Annex B (normative) Determination of clearances and creepage distances 98
B.1 General 98
B.2 Orientation and location of a creepage distance 98
B.3 Creepage distances where more than one material is used 98
B.4 Creepage distances split by floating conductive part 98
B.5 Measurement of creepage distances and clearances 98
Annex C (normative) Arrangement for the detection of the emission of ionized gases during short-circuit tests 102
Annex D (informative) Methods of determination of short-circuit power factor 105
D.1 General 105
D.2 Method I – Determination from DC components 105
D.3 Method II – Determination with pilot generator 105
Annex E (informative) Examples of terminal designs 106
Annex F (informative) Correspondence between ISO and AWG copper conductors 109
Annex G (informative) SCPDs for short-circuit tests 110
G.1 General 110
G.2 Silver wires 110
G.3 Declared protective devices 110
G.4 Other means 111
Annex H (informative) POP configurations according to classification in 4.1 112
Bibliography 113

SIST Preview
(https://ecommerce.sist.si)

Figure 1 – Thread forming tapping screw 74
Figure 2 – Thread cutting tapping screw 74
Figure 3 – Standard test finger (see 9.6) 75
Figure 4 – Typical diagram for all short circuit tests except for the verification of the suitability in IT systems 76
Figure 5 – Typical diagram for the verification of the suitability in IT systems 77
Figure 6 – Detail of impedance Z, Z_1 and Z_2 in Figure 4 and Figure 5 77
Figure 7 – Example of calibration record for short-circuit test (see 9.11.2.2 j)) 79
Figure 8 – Mechanical shock test apparatus (see 9.12.1) 80
Figure 9 – Mechanical impact test apparatus (see 9.12.2) 81
Figure 10 – Striking element for pendulum impact test apparatus (see 9.12.2) 82
Figure 11 – Mounting support for sample for mechanical impact test (see 9.12.2) 83
Figure 12 – Example of mounting of unenclosed POPs for mechanical impact test (see 9.12.2) 84
Figure 13 – Example of mounting of panel mounting type POPs for mechanical impact test (see 9.12.2) 85
Figure 14 – Application of force for mechanical test of rail mounted POPs (see 9.12.2) 86
Figure 15 – Ball-pressure test apparatus (see 9.13.2) 86
Figure 16 – Surge current impulse 8/20 µs 87
Figure 17 – Test circuit for the surge current test 87
Figure 18 – Example of test circuit for verification of ageing of electronic components (see 9.17) 88
Figure 19 – Minimum creepage distances and clearances measured in millimetres 89

SIST EN IEC 63052:2021
https://ecommerce.sist.si/catalog/standards/sist/01fe9194-9d12-45dd-892d-e623f84dcbd5/sist-en-iec-63052-2021