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BUREAU OF INDIAN STANDARDS
DRAFT FOR COMMENTS ONLY

Draft Indian Standard

Solid-state relays

(First Revision)

ICS 29.120.70

Power Systems Relays Sectional Committee, ETD 35	Last date of receipt of comments**:** 19 February 2025

NATIONAL FOREWORD

This draft Indian Standard (First Revision) which is identical with IEC 62314: 2022 "Solid-state relays – Safety requirements" issued by the International Electrotechnical Commission (IEC) will be adopted by the Bureau of Indian Standards on the recommendation of the Power Systems Relays Sectional Committee and approval of the Electrotechnical Division Council.

The text of IEC Standard has been approved as suitable for publication as an Indian Standard without deviations. Certain terminologies and conventions are, however, not identical to those used in Indian Standards. Attention is particularly drawn to the following:

a) Wherever the words 'International Standard' appear referring to this standard, they should be read as 'Indian Standard'.
b) Comma (,) has been used as a decimal marker, while in Indian Standards the current practice is to use a point (.) as the decimal marker.

This edition includes the following significant technical changes with respect to the previous edition:
a) addition of load categories for DC load;
b) addition of load category for self-ballasted lamp load;
c) addition of "sockets" terminal;
d) update of references;
e) introduction of the requirement of EMC;
f) restructuring of the whole document.

In this adopted standard, reference appears to International Standards for which Indian Standards also exists. The corresponding Indian Standards, which are to be substituted, are listed below along with their degree of equivalence for the editions indicated:

International Standard	*Corresponding Indian Standard*	*Degree of Equivalence*
IEC 60038:2009, IEC standard voltages	IS 12360: 1988 IEC 60038, Voltage bands for electrical installations including preferred voltages	Identical

	and frequency	
60068-2-1:2007:1990, Environmental testing — Part 2-1: Tests — Test A: Cold	IS/IEC 60068-2-1) : 2007 IEC 60068-2-1:2007, Environmental Testing Part 2 Tests Section 1 Test A: Cold	Indigenous
IEC 60068-2-2:2007, Environmental testing — Part 2-2: Tests — Test B: Dry heat	IS/IEC 60068-2-2) : 2007 IEC 60068-2-2:2007, Environmental Testing Part 2: Tests - Test B Section 2: Dry Heat	Identical
IEC 60068-2-14:2009, Environmental testing – Part 2: Tests. Test N: Change of temperature Amendment 1 (1986)	IS/IEC 60068-2-14) : 2009 IEC 60068 Part 2/Sec 14:2009, Environmental testing Part 2: Tests Section 14: Test N: Change of temperature	Identical
IEC 60068-2-20:2021, Environmental testing – Part 2: Tests. Test T: Soldering Amendment 2 (1987)	IS/IEC 60068-2-20) : 2021 IEC 60068-2-20: 2021, Environmental testing Part 2 Tests Section 20 Tests Ta and Tb: Test methods for solderability and resistance to soldering heat of devices with leads	Identical
IEC 60068-2-78:2012, Environmental testing – Part 2-78: Tests – Test Cab: Damp heat, steady state	IS 9000 (Part 4) : 2020 IEC 60068-2-78: 2012, Environmental Testing Part 4 Tests - Test Cab: Damp Heat, Steady State (Second Revision)	Identical
IEC 60112:2020, Method for the determination of the proof and the comparative tracking indices of solid insulating materials	IS 2824: 2007 IEC 60112: 2003, Method for the determination of the proof and the comparative tracking indices of solid insulating materials (Second Revision)	Identical
IEC 60664-1:2020, Insulation coordination for equipment within low-voltage systems – Part 1: Principles, requirements and tests	IS 15382 (Part 1) : 2014 IEC 60664-1 : 2007, Insulation coordination for equipment within low - Voltage systems: Part 1 principles, requirements and tests (First Revision) (Withdrawn)	Identical
IEC 60664-3:2016, Insulation coordination for equipment within low-voltage systems – Part 3: Use of coating, potting or moulding for protection against pollution	IS 15382 (Part 3) : 2019 IEC 60664-3 : 2006, Insulation coordination for equipment within low-voltage systems : Part 3 use of coating potting or moulding for protection against pollution	Identical
IEC 60669-1:2017, Switches for household and similar fixed-electrical installations – Part 1: General requirements	IS/IEC 60669-2- 1 : 2008, Switches for Household and Similar Fixed Electrical Installations Part 2 Particular Requirements Section 1 Electronic Switches	Identical
IEC 60695-2-11:2021, Fire hazard testing – Part 2-11: Glowing/hot-wire based test methods – Glow-wire flammability test	IS/IEC 60695-2-11 : 2014 IEC 60695-2-11 : 2014, Fire Hazard Testing Part 2-11 Glowing / Hot-Wire Based Test Methods Glow-Wire	Identical

method for end-products (GWEPT)	Flammability Test Method for End-Products (GWEPT) (Withdrawn)	
IEC 60695-2-12:2021, Fire hazard testing – Part 2-12: Glowing/hot-wire based test methods – Glow-wire flammability index (GWFI) test method for materials	IS/IEC 60695-2-12): 2014 IEC 60695-2-12: 2014, Fire Hazard Testing Part 2 Glowing / Hot-Wire Based Test Methods Section 12 Glow-wire flammability index (GWFI) test method for materials (Withdrawn)	Identical
IEC 60695-10-2:2014, Fire hazard testing – Part 10-2: Abnormal heat – Ball pressure test method	IS/IEC 60695-10-2 : 2014 IEC 60695-10-2 : 2014, Fire hazard testing: Part 10 Abnormal heat: Sec 2 ball pressure test method	Identical
IEC 61000-4-2:2008, Electromagnetic compatibility (EMC) – Part 4-2: Testing and measurement techniques – Electrostatic discharge immunity test	IS 14700 (Part 4/Sec 4) : 2018 IEC 61000-4-4 : 2012, Electromagnetic compatibility (EMC): Part 4 testing and measurement techniques: Sec 4 electrical fast transient / burst immunity test (Second Revision)	Identical
IEC 61000-4-3:2020, Electromagnetic compatibility (EMC) – Part 4-3: Testing and measurement techniques – Radiated, radio-frequency, electromagnetic field immunity test	IS 14700 (Part 4/Sec 3) : 2018 IEC 61000-4-24, Electromagnetic Compatibility (EMC) Part 4 Testing and Measurement Techniques Section 24 Test methods for protective devices for HEMP conducted disturbance (First Revision)	Identical
IEC 61000-4-4:2012, Electromagnetic compatibility (EMC) – Part 4-4: Testing and measurement techniques – Electrical fast transient/burst immunity test	IS 14700 (Part 4/Sec 4) : 2018 IEC 61000-4-4 : 2012, Electromagnetic compatibility (EMC): Part 4 testing and measurement techniques: Sec 4 electrical fast transient / burst immunity test (Second Revision)	Identical
IEC 61000-4-5:2014, Electromagnetic compatibility (EMC) – Part 4-5: Testing and measurement techniques – Surge immunity test IEC 61000-4-5:2014/AMD1:2017	IS 14700 (Part 4/Sec 5) : 2019 IEC 61000-4-5 : 2017, Electromagnetic compatibility (EMC): Part 4 testing and measurement techniques: Sec 5 surge immunity test (First Revision)	Identical
IEC 61000-4-6:2013, Electromagnetic compatibility (EMC) – Part 4-6: Testing and measurement techniques – Immunity to conducted disturbances, induced by radio-frequency fields	IS 14700 (Part 4/Sec 6) : 2016 IEC 61000-4-6 : 2013, Electromagnetic compatibility (EMC): Part 4 testing and measurement techniques: Sec 6 immunity to conducted disturbances, induced by radio - Frequency fields	Identical
IEC 61000-4-8:2009, Electromagnetic compatibility (EMC) – Part 4-8: Testing and measurement techniques – Power frequency magnetic field immunity test	IS 14700 (Part 4/Sec 8) : 2018 IEC 61000-4-8 : 2009, Electromagnetic compatibility (EMC): Part 4 testing and measurement techniques: Sec 8 power frequency magnetic field immunity test (Second Revision)	Identical
IEC 61000-4-11:2020,	IS 14700 (Part 4/Sec 11) : 2008	Identical

Electromagnetic compatibility (EMC) – Part 4-11: Testing and measurement techniques – Voltage dips, short interruptions and voltage variations immunity tests for equipment with input current up to 16 A per phase	IEC 61000-4-11, Electromagnetic compatibility (EMC): Part 4 testing and measurement techniques: Sec 11 voltage dips, short interruptions and voltage variations immunity tests (Withdrawn)	
IEC 61000-4-34:2005, Electromagnetic compatibility (EMC) – Part 4-34: Testing and measurement techniques – Voltage dips, short interruptions and voltage variations immunity tests for equipment with input current more than 16 A per phase IEC 61000-4-34:2005/AMD1:2009	IS 14700 (Part 4/Sec 34): 2017, Electromagnetic compatibility (EMC): Part 4 testing and measurement techniques: Sec 34 voltage dips, short interruptions and voltage variations immunity tests for current more than 16 A per phase	Identical
IEC 61180:2016, High-voltage test techniques for low-voltage equipment – Definitions, test and procedure requirements, test equipment	IS 16826:2018, High - Voltage Test Techniques for Low-Voltage Equipment - Definitions, Test and Procedure Requirements, Test Equipment	Identical
IEC 61810-1:2015, Electromechanical elementary relays – Part 1: General and safety requirements IEC 61810-1:2015/AMD1:2019	IS 17064 (Part 1): 2018 IEC 61810-1: 2015, Electromechanical elementary relays: Part 1 general and safety requirements	Identical
IEC 62368-1:2018, Audio/video, information and communication technology equipment – Part 1: Safety requirements	IS/IEC 62368-1: 2018, Audio / Video, Information and Communication Technology Equipment Part 1 Safety Requirements (First Revision)	Identical
IEC TS 62993:2017, Guidance for determination of clearances, creepage distances and requirements for solid insulation for equipment with a rated voltage above 1 000 V AC and 1500 V DC, and up to 2 000 V AC and 3 000 V DC	IS/IEC/TS 62993: 2017, Guidance for determination of clearances, creepage distances and requirements for solid insulation for equipment with a rated voltage above 1 000 V AC and 1 500 V DC, and up to 2 000 V AC and 3 000 V DC	Identical
CISPR 11:2015, Industrial, scientific and medical equipment – Radio-frequency disturbance characteristics – Limits and methods of measurement CISPR 11:2015/AMD1:2016 CISPR 11:2015/AMD2:2019	IS 6873 (Part 4): 1999, Limits and Methods of Measurement of Radio Disturbance Characteristics - Part 4: Industrial, Scientific and Medical (ISM) Radio-frequency Equipment (Withdrawn)	Identical
IEC 60050-444:2002, International Electrotechnical Vocabulary (IEV) – Part 444: Elementary relays (available at www.electropedia.org)	IS 1885 (Part 9/Sec 1): 2019, Electrotechnical Vocabulary Part 9 Relays Section 1 Elementary relays (Third Revision)	Identical

The technical committee has reviewed the provisions of the following international standards referred in this adopted standard and decided that they are acceptable for use in conjunction with this standard.

International Standard	*Title*
IEC 60050-195:1998	Earthing and protection against electric shock
IEC 61210:2010	Connecting devices – Flat quick-connect terminations for electrical copper conductors – Safety requirements
IEC 61760-1:2020	Surface mounting technology – Part 1: Standard method for the specification of surface mounting components (SMDs)
IEC 61984:2008	Connectors – Safety requirements and tests
IEC 60999-1:1999	Connecting devices – Electrical copper conductors – Safety requirements for screw-type and screwless-type clamping units – Part 1: General requirements and particular requirements for clamping units for conductors from 0,2 mm2 up to 35 mm2 (included)
IEC 60747-5-5:2020	Semiconductor devices – Part 5-5: Optoelectronic devices – Photocouplers

Only the English language text has been retained while adopting it in this Indian Standard, and as such, the page numbers given here are not the same as in the IEC Publication.

For the purpose of deciding whether a particular requirement of this standard is complied with the final value, observed or calculated expressing the result of a test or analysis shall be rounded off in accordance with IS 2: 2022 'Rules for rounding of numerical values (*Second Revision*)'. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

Note — The technical content of their document has not been enclosed as there are identical with the corresponding IEC standards for details, please refer the corresponding IEC 62314:2022 or kindly contact:

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