AS/NZS 60669.2.1:2013

Australian/New Zealand Standard™

Switches for household and similar fixed electrical installations

Part 2.1: Particular requirements—Electronic switches (IEC 60669-2-1, Ed.4.1 (2009) MOD)

This Joint Australian/New Zealand Standard was prepared by Joint Technical Committee EL-004, Electrical Accessories. It was approved on behalf of the Council of Standards Australia on 19 February 2013 and on behalf of the Council of Standards New Zealand on 28 February 2013.
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The following are represented on Committee EL-004:

Australian Industry Group
Consumer Electronics Suppliers Association
Consumers Federation of Australia
Electrical Compliance Testing Association
Electrical Regulatory Authorities Council
Engineers Australia
International Accreditation New Zealand
Ministry of Economic Development, New Zealand
New Zealand Manufacturers and Exporters Association
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We also welcome suggestions for improvement in our Standards, and especially encourage readers to notify us immediately of any apparent inaccuracies or ambiguities. Please address your comments to the Chief Executive of either Standards Australia or Standards New Zealand at the address shown on the back cover.

This Standard was issued in draft form for comment as DR AS/NZS 60669.2.1.

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PREFACE

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee EL-004, Electrical Accessories, and Sub-Committee EL-004-14, Switches and Thermostats. This Standard is a specific standard for electronic switches which were formerly covered under the general requirements of AS/NZS 3100, *Approval and test specification—General requirements for electrical equipment.*

The objective of this Standard is to provide Australian and New Zealand electrical industries with requirements for electronic switches, intended for household and similar fixed installations, either indoors and outdoors.

This Standard is an adoption with national modifications and has been reproduced from IEC 60669-2-1, Ed.4.1 (2009), *Switches for household and similar fixed electrical installations*—Part 2-1: *Particular requirements—Electronic switches* and has been varied as indicated to take account of Australian/New Zealand conditions. The modifications are specified in Appendix ZZ.

This Standard is to be used in conjunction with AS/NZS 60669.1:2013, *Switches for household and similar fixed-electrical installations,* Part 1: *General requirements,* which provides general requirements on this subject. Where the source document refers to 'part 1', AS/NZS 60669.1 should be consulted.

The source document, IEC 60669-2-1, comprises the fourth edition (2002) and its amendment 1 (2009) which has been incorporated into the text and the changes indicated by lines in the margin.

This Standard is structured in the following layout:

(a) Preface.

(b) IEC 60669-2-1 (unedited from the contents page to the final clause of the source document).

(c) Appendix ZZ—Australian/New Zealand variations to the source document.

The variations listed in Appendix ZZ address issues including the following:

(i) M rating test for all switches marked as suitable for controlling motors.

(ii) Requirements for the fitting of field-installed insulation when required to comply with the requirements for IP protection, insulation resistance and high voltage.

As this Standard is reproduced from an International Standard, a full point substitutes for a comma when referring to a decimal marker. Test specifications are indicated with *italic type*.

References to International Standards should be replaced by references to Australian or Australian/New Zealand Standards, as follows:

Reference to International Standard		*Australian/New Zealand Standard*	
IEC 60065 (2001)	Audio, video and similar electronic apparatus—Safety requirements	AS/NZS 60065 (2012)	Audio, video and similar electronic apparatus—Safety requirements (IEC 60065, Ed.7.2 (2011) MOD)
60227	Polyvinyl chloride insulated cables of rated voltages up to and including 450/750 V	60227	Polyvinyl chloride insulated cables of rated voltages up to and including 450/750 V
60227-5 (1997)	Part 5: Flexible cables (cords)	60227.5 (2003)	Part 5: Flexible cables (cords)

IEC		AS/NZS IEC	
60998	Connecting devices for low-voltage circuits for household and similar purposes	60998	Connecting devices for low-voltage circuits for household and similar purposes
60998-2-1	Part 2-1: Particular requirements for connecting devices as separate entities with screw-type clamping units	60998.2.1	Part 2.1: Particular requirements for connecting devices as separate entities with screw-type clamping units
IEC		AS/NZS	
61000	Electromagnetic compatibility (EMC)	61000	Electromagnetic compatibility (EMC)
61000-2-2 (2002)	Part 2-2: Environment—Compatibility levels for low-frequency conducted disturbances and signalling in public low-voltage power supply systems	61000.2.2 (2003)	Part 2.2: Environment—Compatibility levels for low-frequency conducted disturbances and signalling in public low-voltage power supply systems
61000-3-2 (2000)	Part 3-2: Limits—Limits for harmonic current emissions (equipment input current ≤16 A per phase)	61000.3.2 (2007)	Part 3.2: Limits—Limits for harmonic current emissions (equipment input current ≤16 A per phase) (IEC 61000-3-2, Ed. 3.0 (2005) MOD)
61000-3-3 (1994)	Part 3-3: Limits—Section 3: Limitation of voltage fluctuations and flicker in low-voltage supply systems for equipment with rated current ≤16 A	61000.3.3 (2012)	Part 3.3: Limits—Limitation of voltage changes, voltage fluctuations and flicker in public low-voltage supply systems, for equipment with rated current ≤16 A per phase and not subject to conditional connection
61000-4-2 (1995)	Part 4-2: Testing and measurement techniques—Section 2: Electrostatic discharge immunity test	61000.4.2 (2002)	Part 4.2: Testing and measurement techniques—Electrostatic discharge immunity test
61000-4-3 (2002)	Part 4-3: Testing and measurement techniques—Radiated, radio-frequency, electromagnetic field immunity test	61000.4.3 (2006)	Part 4.3: Testing and measurement techniques—Radiated, radio-frequency, electromagnetic field immunity test
61000-4-4 (1995)	Part 4-4: Testing and measurement techniques—Electrical fast transient/burst immunity test	61000.4.4 (2006)	Part 4.4: Testing and measurement techniques—Electrical fast transient/burst immunity test
61000-4-5 (1995)	Part 4-5: Testing and measurement techniques—Section 5: Surge immunity test	61000.4.5 (2006)	Part 4.5: Testing and measurement techniques—Surge immunity test
61000-4-6 (1996)	Part 4-6: Testing and measurement techniques—Section 6: Immunity to conducted disturbances, induced by radio-frequency fields	61000.4.6 (2006)	Part 4.6: Testing and measurement techniques—Immunity to conducted disturbances, induced by radio-frequency fields
61000-4-8 (1993)	Part 4-8: Testing and measurement techniques—Section 8: Power frequency magnetic field immunity test	61000.4.8 (2012)	Part 4.8: Testing and measurement techniques—Power frequency magnetic field immunity test
61000-4-11 (1994)	Part 4-11: Testing and measuring techniques—Section 11: Voltage dips, short interruptions and voltage variations immunity tests	61000.4.11 (2005)	Part 4.11: Testing and measurement techniques—Voltage dips, short interruptions and voltage variations immunity tests (IEC 61000-4-11, Ed. 2.0 (2004) MOD)

IEC		AS/NZS	
61558	Safety of power transformers, power supply units and similar	61558	Safety of power transformers, power supply units and similar products for supply voltages up to 1 100 V
61558-2-6	Part 2-6: Particular requirements for safety isolating transformers for general use	61558.2.6	Part 2.6: Particular requirements for safety isolating transformers and power supply units incorporating safety isolating transformers (IEC 61558-2 Ed.2, MOD)
CISPR		AS/NZS CISPR	
14	Electromagnetic compatibility—Requirements for household appliances, electric tools and similar apparatus	14	Electromagnetic Compatibility—Requirements for household appliances, electrical tools and similar apparatus
14-1	Part 1: Emission	14.1	Part 1: Emission
14-2	Part 2: Immunity—Product family standard	14.2	Part 2: Immunity—Product family standard
15 (2000)	Limits and methods of measurement of radio disturbance characteristics of electrical lighting and similar equipment	15 (2011)	Limits and methods of measurement of radio disturbance characteristics of electrical lighting and similar equipment (CISPR 15, Ed.7.2 (2009) MOD)
ISO		AS	
306 (1994)	Plastics—Thermoplastic materials—Determination of Vicat Softening Temperature (VST)	1368 (2000)	Plastics—Thermoplastic materials—Determination of Vicat softening temperature (VST)

Only international references that have been adopted as Australian or Australian/New Zealand Standards have been listed.

The terms ‘normative’ and ‘informative’ have been used in this Standard to define the application of the annex or appendix to which they apply. A ‘normative’ annex or appendix is an integral part of a Standard, whereas an ‘informative’ annex or appendix is only for information and guidance.

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AUSTRALIAN/NEW ZEALAND STANDARD

Switches for household and similar fixed electrical installations

Part 2.1:
Particular requirements—Electronic switches (IEC 60669-2-1, Ed.4.1 (2009) MOD)

1 Scope

This clause of part 1 applies except as follows.

Replacement:

This standard applies to electronic switches and to associated electronic extension units for household and similar fixed electrical installations either indoors or outdoors.

It applies to electronic switches for a.c. only, for the operation of lamp circuits and the control of the brightness of lamps (dimmers) as well as the control of the speed of motors (for example, those used in ventilating fans) and for other purposes (for example, heating controls), with a rated voltage not exceeding 250 V and a rated current not exceeding 16 A.

The operation and/or control as mentioned above are performed by a person via an actuating member, a sensing surface or a sensing unit, by means of touch, proximity, turn, optical, acoustic, thermal or any other influence.

This standard also applies to general purpose electronic switches with included automatic functions where the operation and/or the control is initiated by a change of a physical quantity, for example light, temperature, humidity, time, wind velocity, presence of persons, etc.

This standard also applies to boxes for electronic switches, with the exception of mounting boxes for flush-type electronic switches.

This standard also applies to electronic RCS and electronic TDS with a rated voltage not exceeding 440 V and a rated current not exceeding 25 A, intended for household and similar fixed electrical installations, either indoors or outdoors.

NOTE 1 Switches including only passive components such as resistors, capacitors, inductors, PTC and NTC components, varistors, printed wiring boards and connectors are not considered as electronic switches.

NOTE 2 Electronic switches may have control circuits with a.c. or d.c. rated control voltages.

Electronic switches complying with this standard are suitable for use at ambient temperature not normally exceeding 25 °C but occasionally reaching 35 °C.

In locations where special conditions prevail, such as in ships, vehicles and the like and in hazardous locations, for example, where explosions are liable to occur, special constructions may be required.

NOTE 3 This standard is not intended to cover devices which are designed to be incorporated in appliances or are intended to be delivered together with a specific appliance and which are within the scope of IEC 60730 or IEC 61058-1.

Examples of designs of electronic switches and functions are shown in annex AA.

NOTE 4 Electronic switches without a mechanical switch in the main circuit do not provide a “full off-state”. Therefore, the circuit on the load side should be considered to be live.