

CONSOLIDATED VERSION

VERSION CONSOLIDÉE



**Switches for household and similar fixed electrical installations –
Part 2-1: Particular requirements – Electronic switches**

**Interrupteurs pour installations électriques fixes domestiques et analogues –
Partie 2-1: Prescriptions particulières – Interrupteurs électroniques**



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Part 2-1: Particular requirements – Electronic switches**

**Interrupteurs pour installations électriques fixes domestiques et analogues –
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SWITCHES FOR HOUSEHOLD AND SIMILAR FIXED ELECTRICAL INSTALLATIONS –

Part 2-1: Particular requirements – Electronic switches

INTERPRETATION SHEET 1

This interpretation sheet has been prepared by subcommittee 23B: Plugs, socket-outlets and switches, of IEC technical committee 23: Electrical accessories.

The text of this interpretation sheet is based on the following documents:

ISH	Report on voting
23B/1012/ISH	23B/1030/RVD

Full information on the voting for the approval of this interpretation sheet can be found in the report on voting indicated in the above table.

Interpretation of the application of IEC 60669-2-1:2002, Subclause 26.2.1, NOTE 2

According to NOTE 2 of 26.2.1 of IEC 60669-2-1:2002, independent dimmers for incandescent lamps up to and including 1 000 W are not tested according to IEC 61000-3-2.

Dimmers according to IEC 60669-2-1 are independent dimmers.

If they are designed to dim different kinds of loads including incandescent lamps they are considered as dimmers for incandescent lamps and according to IEC 61000-3-2 they need not to be tested with all different kinds of load.

As a consequence independent dimmers complying with IEC 60669-2-1 and designed to dim different kinds of loads including incandescent lamps need not to be tested according to Clause 7 of IEC 61000-3-2:2005 and its Amendments 1:2008 and 2:2009, if the rated power is less than or equal to 1000 W.

NOTE This interpretation sheet will be withdrawn once IEC 61000-3-2 will have been modified to cover also dimmers for other kinds of loads than incandescent lamps.

INTERRUPTEURS POUR INSTALLATIONS ÉLECTRIQUES FIXES DOMESTIQUES ET ANALOGUES –

Partie 2-1: Prescriptions particulières – Interrupteurs électroniques

FEUILLE D'INTERPRÉTATION 1

Cette feuille d'interprétation a été établie par le sous-comité 23B: Prises de courant et interrupteurs, du comité d'études 23: Petit appareillage, de la CEI.

Le texte de cette feuille d'interprétation est issue des documents suivants:

ISH	Rapport de vote
23B/1012/FDIS	23B/1030/RVD

Le rapport de vote indiqué dans le tableau ci-dessus donne toute information sur le vote ayant abouti à l'approbation de cette feuille d'interprétation.

Interprétation de l'application de la CEI 60669-2-1:2002, Paragraphe 26.2.1, NOTE 2

Selon la NOTE 2 de 26.2.1 de la CEI 60669-2-1:2002, les variateurs indépendants pour lampes à incandescence jusqu'à 1 000 W inclus ne sont pas vérifiés selon la CEI 61000-3-2.

Les variateurs selon la CEI 60669-2-1 sont variateurs indépendants.

S'ils sont conçus pour faire varier différents types de charges inclus des lampes à incandescence, ils sont considérés comme des variateurs pour lampes à incandescence et selon la CEI 61000-3-2 ils n'ont pas besoin d'être vérifiés avec toutes les différentes types de charge.

En conséquence les variateurs indépendants conformes à la CEI 60669-2-1 et conçus pour faire varier différents types de charge, lampes à incandescence inclus, n'ont pas besoin d'être vérifiés selon l'Article 7 de la CEI 61000-3-2:2005 et ses Amendements 1:2008 et 2:2009, si la puissance assignée est moins de ou égale à 1000 W.

NOTE Cette feuille d'interprétation sera retirée une fois que la CEI 61000-3-2 aura été modifiée pour inclure aussi les variateurs pour les autres types de charge que les lampes à incandescence.

**SWITCHES FOR HOUSEHOLD AND SIMILAR
FIXED ELECTRICAL INSTALLATIONS –**

Part 2-1: Particular requirements – Electronic switches

INTERPRETATION SHEET

This interpretation sheet has been prepared by subcommittee 23B: Plugs, socket-outlets and switches, of IEC technical committee 23: Electrical accessories.

The text of this interpretation sheet is based on the following documents:

ISH	Report on voting
23B/1038/ISH	23B/1053/RVD

Full information on the voting for the approval of this interpretation sheet can be found in the report on voting indicated in the above table.

Due to legislation in different countries the sale of tungsten filament lamps is banned.

According to the above, electronic switches for incandescent lamps are tested by using either a number of 200 W tungsten filament lamps or a number of halogen filament lamps.

As the characteristics of halogen filament lamps of different power are equivalent, lamps of any power can be used to reach the rated load.

**INTERRUPTEURS POUR INSTALLATIONS
ELECTRIQUES FIXES DOMESTIQUES ET ANALOGUES –**

Partie 2-1: Prescriptions particulières – Interrupteurs électroniques

FEUILLE D'INTERPRÉTATION

Cette feuille d'interprétation a été établie par le sous-comité 23B: Prises de courant et interrupteurs, du comité d'études 23 de la CEI : Petit appareillage.

Le texte de cette feuille d'interprétation est issue des documents suivants:

ISH	Rapport de vote
23B/1038/ISH	23B/1053/RVD

Le rapport de vote indiqué dans le tableau ci-dessus donne toute information sur le vote ayant abouti à l'approbation de cette feuille d'interprétation.

En raison de la législation dans différents pays, la vente des lampes à incandescence à filament en tungstène est interdite.

En conséquence, les interrupteurs électroniques pour lampes à incandescence sont essayés en utilisant soit un nombre adéquat de lampes à incandescence à filament en tungstène à 200 W soit un nombre adéquat de lampes halogènes à filament.

Comme les caractéristiques des lampes halogènes à filament de puissance différente sont équivalentes, des lampes de n'importe quelle puissance peuvent être utilisées pour atteindre la charge assignée.

REDLINE VERSION

VERSION REDLINE



**Switches for household and similar fixed electrical installations –
Part 2-1: Particular requirements – Electronic switches**

**Interrupteurs pour installations électriques fixes domestiques et analogues –
Partie 2-1: Prescriptions particulières – Interrupteurs électroniques**

CONTENTS

FOREWORD.....	4
1 Scope.....	6
2 Normative references.....	7
3 Definitions	8
4 General requirements	12
5 General notes on tests.....	12
6 Rating.....	13
7 Classification.....	13
8 Marking	14
9 Checking of dimensions.....	17
10 Protection against electric shock.....	17
11 Provision for earthing.....	18
12 Terminals	19
13 Constructional requirements	19
14 Mechanism	21
15 Resistance to ageing, protection provided by enclosures of switches, and resistance to humidity.....	21
16 Insulation resistance and electric strength.....	21
17 Temperature rise	22
18 Making and breaking capacity	25
19 Normal operation	27
20 Mechanical strength.....	32
21 Resistance to heat.....	32
22 Screws, current-carrying parts and connections	33
23 Creepage distances, clearances and distances through sealing compound.....	33
24 Resistance of insulating material to abnormal heat, to fire and to tracking	35
25 Resistance to rusting	35
26 EMC requirements	35
101 Abnormal conditions	42
102 Components	46
Annex A (normative) Survey of specimens needed for tests.....	52
Annex B (normative) Additional requirements for switches having facilities for the outlet and retention of flexible cables	53
Annex AA (informative) Examples of types of electronic switches and their functions	54
Annex BB (informative) Circuit development: subclause 19.109 explained.....	55
Annex CC (normative) Additional requirements for electronic switches using DLT-technology according to IEC 62756-1	60
Bibliography	62
Figure 101 – Test pin for checking the protection against electric shock	50

Figure 102 – Circuit diagram for testing electronic switches according to 101.3.....	50
Figure 103 – Circuit diagrams for testing switches according to subclauses 19.102 and 19.109	51
Figure BB.1 – 120 V 15 W (LT spice model)	56
Figure BB.2 – 230 V 15 W (LT spice model)	57
Figure BB.3 – Model for multiple lamp loads	58
Figure BB.4 – I_{peak} and I^2t for multiple lamp loads	59
Table 101 – Number of specimens	12
Table 102 – Permissible temperature rise values (This table is based on table 3 of IEC 60065)	24
Table 103 – Relationship between rated current and capacitance	29
Table 104 – Immunity tests (overview).....	36
Table 105 – Voltage dip and short-interruption test values	37
Table 106 – Fast transient test values	38
Table 107 – Capacitors	48
Table 108 – Values for I_{peak} and I^2t depending on the type of distribution system	32
Table 109 – Calculated circuit parameters	32
Table 110 – Surge immunity test voltages.....	37
Table B.1 – Maximum current and minimum cross-sectional area	53
Table BB.1 – Lamp	55

INTERNATIONAL ELECTROTECHNICAL COMMISSION

**SWITCHES FOR HOUSEHOLD AND SIMILAR
FIXED ELECTRICAL INSTALLATIONS –****Part 2-1: Particular requirements –
Electronic switches**

FOREWORD

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This Consolidated version of IEC 60669-2-1 bears the edition number 4.2. It consists of the fourth edition (2002-09) [documents 23B/668/FDIS and 23B/682/RVD], its amendment 1 (2008-10) [documents 23B/894/FDIS and 23B/907/RVD] and its amendment 2 (2015-03) [documents 23B/1175/FDIS and 23B/1183/RVD]. The technical content is identical to the base edition and its amendments.

In this Redline version, a vertical line in the margin shows where the technical content is modified by amendments 1 and 2. Additions and deletions are displayed in red, with

deletions being struck through. A separate Final version with all changes accepted is available in this publication.

International Standard IEC 60669-2-1 has been prepared by subcommittee 23B: Plugs, socket-outlets and switches, of IEC technical committee 23: Electrical accessories.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 3.

This part of IEC 60669-2 shall be used in conjunction with IEC 60669-1. It lists the changes necessary to convert that standard into a specific standard for electronic switches.

In this publication, the following print types are used:

- requirements proper: in roman type.
- *test specifications: in italic type.*
- notes: in smaller roman type.

Subclauses, figures, tables or notes which are additional to those in part 1 are numbered starting from 101.

Annex AA is for information only.

The committee has decided that the contents of the base publication and its amendments will remain unchanged until the stability date indicated on the IEC web site under "<http://webstore.iec.ch>" in the data related to the specific publication. At this date, the publication will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
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SWITCHES FOR HOUSEHOLD AND SIMILAR FIXED ELECTRICAL INSTALLATIONS –

Part 2-1: Particular requirements – Electronic switches

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 **made** initiated by a **change of a** physical **means** 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 1 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 2 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.

2 Normative references

This clause of part 1 applies except as follows.

Addition:

IEC 60065:2001, *Audio, video and similar electronic apparatus – Safety requirements*

IEC 60085:1984, *Thermal evaluation and classification of electrical insulation*

IEC 60127 (all parts), *Miniature fuses*

IEC 60227-5:1997, *Polyvinyl chloride insulated cables of rated voltages up to and including 450/750 V – Part 5: Flexible cables (cords)*¹⁾

IEC 60317 (all parts), *Specifications for particular types of winding wires*

IEC 60317-0-1:1997, *Specifications for particular types of winding wires – Part 0: General requirements – Section 1: Enamelled round copper wire*¹⁾

IEC 60384-14:1993, *Fixed capacitors for use in electronic equipment – Part 14: Sectional specification: Fixed capacitors for electromagnetic interference suppression and connection to the supply mains*

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

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

IEC 60669-2-2:2006, *Switches for household and similar fixed electrical installations – Part 2-2: Particular requirements - Electromagnetic remote-control switches (RCS)*

IEC 60669-2-3:2006, *Switches for household and similar fixed electrical installations – Part 2-3: Particular requirements - Time-delay switches (TDS)*

IEC 60730 (all parts), *Automatic electrical controls for household and similar use*

IEC 60998-2-1, *Connecting devices for low-voltage circuits for household and similar purposes - Part 2-1: Particular requirements for connecting devices as separate entities with screw-type clamping units*

IEC 61000-2-2:2002, *Electromagnetic compatibility (EMC) – Part 2-2: Environment – Compatibility levels for low-frequency conducted disturbances and signalling in public low-voltage power supply systems*

IEC 61000-3-2:2000, *Electromagnetic compatibility (EMC) – Part 3-2: Limits – Limits for harmonic current emissions (equipment input current ≤ 16 A per phase)*¹⁾

IEC 61000-3-3:1994, *Electromagnetic compatibility (EMC) – Part 3: Limits – Section 3: Limitation of voltage fluctuations and flicker in low-voltage supply systems for equipment with rated current ≤ 16 A*¹⁾

¹⁾ A consolidated version of this standard exists.

IEC 61000-4-2:1995, *Electromagnetic compatibility (EMC) – Part 4: Testing and measurement techniques – Section 2: Electrostatic discharge immunity test*¹⁾

IEC 61000-4-3:2002, *Electromagnetic compatibility (EMC) – Part 4-3: Testing and measurement techniques – Radiated, radio-frequency, electromagnetic field immunity test*

IEC 61000-4-4:1995, *Electromagnetic compatibility (EMC) – Part 4: Testing and measurement techniques – Section 4: Electrical fast transient/burst immunity test*

IEC 61000-4-5:1995, *Electromagnetic compatibility (EMC) – Part 4: Testing and measurement techniques – Section 5: Surge immunity test*¹⁾

IEC 61000-4-6:1996, *Electromagnetic compatibility (EMC) – Part 4: Testing and measurement techniques – Section 6: Immunity to conducted disturbances, induced by radio-frequency fields*¹⁾

IEC 61000-4-8:1993, *Electromagnetic compatibility (EMC) – Part 4: Testing and measurement techniques – Section 8: Power frequency magnetic field immunity test*¹⁾

IEC 61000-4-11:1994, *Electromagnetic compatibility (EMC) – Part 4: Testing and measurement techniques – Section 11: Voltage dips, short interruptions and voltage variations immunity tests*¹⁾

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

IEC 61558-2-6, *Safety of power transformers, power supply units and similar – Part 2: Particular requirements for safety isolating transformers for general use*

IEC 62756-1, *Digital load side transmission lighting control – Part 1: Basic requirements*

CISPR 14 (all parts), *Electromagnetic compatibility – Requirements for household appliances, electric tools and similar apparatus*

CISPR 15:2000 2013, *Limits and methods of measurement of radio disturbance characteristics of electrical lighting and similar equipment*

ISO 306:1994, *Plastics – Thermoplastic materials – Determination of Vicat softening temperature (VST)*

3 Definitions

This clause of part 1 applies with the following additions.

Addition, after the first paragraph:

The term “electronic switch” is used as a general term to cover both electronic switching and control devices.

3.101

rated load

load assigned to the electronic switch by the manufacturer

¹⁾ A consolidated version of this standard exists.