



SLOVENSKI STANDARD
SIST EN IEC 60669-2-1:2023/A11:2023

01-maj-2023

**Stikala za gospodinjstva in podobne nepremične električne inštalacije - 2-1. del:
Posebne zahteve - Elektronske kontrolne naprave - Dopolnilo A11**

Switches for household and similar fixed electrical installations - Part 2-1: Particular requirements - Electronic control devices

Schalter für Haushalt und ähnliche ortsfeste elektrische Installationen - Teil 2-1:
Besondere Anforderungen - Elektronische Schalter

Interrupteurs pour installations électriques fixes domestiques et analogues - Partie 2-1:
Exigences particulières - Dispositifs de commande électronique

Ta slovenski standard je istoveten z: EN IEC 60669-2-1:2022/A11:2022

ICS:

29.120.40	Stikala	Switches
97.120	Avtomatske krmilne naprave za dom	Automatic controls for household use

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ICS 29.120.40

English Version

Switches for household and similar fixed electrical installations - Part 2-1: Particular requirements - Electronic control devices

Interrupteurs pour installations électriques fixes
domestiques et analogues - Partie 2-1: Exigences
particulières - Dispositifs de commande électronique

Schalter für Haushalt und ähnliche ortsfeste elektrische
Installationen - Teil 2-1: Besondere Anforderungen -
Elektronische Schalter

This amendment A11 modifies the European Standard EN IEC 60669-2-1:2022; it was approved by CENELEC on 2022-07-12. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this amendment 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.

This amendment 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, Türkiye and the United Kingdom.



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

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EN IEC 60669-2-1:2022/A11:2022 (E)**European foreword**

This document EN IEC 60669-2-1:2022/A11:2022 has been prepared by CLC/TC 23BX “Switches, boxes and enclosures for household and similar purposes, plugs and socket outlet for D.C.”.

The following dates are fixed:

- latest date by which this document has to be (dop) 2023-07-12 implemented at national level by publication of an identical national standard or by endorsement
- latest date by which the national standards (dow) 2025-07-12 conflicting with this document have to be withdrawn

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 is read in conjunction with EN IEC 60669-2-1:2022.

This document has been prepared under a Standardization Request given to CENELEC by the European Commission and the European Free Trade Association.

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.

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<https://standards.iteh.ai/catalog/standards/sist/1f3aca77-6136-4ddb-ab21-2688b66119c1/sist-en-iec-60669-2-1-2023-a11-2023>

1 Modification to Clause 1, “Scope”

Delete Note 2.

Replace the beginning of the 8th paragraph with:

“The operation and/or control as mentioned in the paragraph above can be transmitted by an electronic signal...”

Replace the last but one paragraph with:

“This document also applies to electronic control devices using DLT-technology in accordance with IEC 62756-1. Additional Requirements are given in Annex CC.”

2 Modification to Clause 16, “Insulation resistance and electric strength”

In Table 15, delete Note 4.

3 Modification to 17.1, “General”

In Table 101, in Note b) and c), replace the word “relevant” with “assessed”.

In Table 101, replace Note g) with:

“g) If a component complies to an IEC component standard and thermal considerations are included in such a standard, this Table 101 shall not be applicable to such a component.”

4 Modification to 18.1, “General”

Change Note 1 and 2 to normative text.

Change the Note in Table 102 to normative text.

Replace the paragraph below Table 102 with:

“The tests are made by means of an apparatus which is arranged to simulate normal operation.”

In **18.102 Electronic switches and HBES/BACS switches for control of the voltage of iron core transformers for extra-low-voltage incandescent lamps**, delete “to simulate making” in the 3rd but last paragraph.

5 Modification to 19.1, “General”

Replace the 5th, 6th and 7th paragraphs with:

“For HBES/BACS switches, the tests according to 19.101 and 19.108 are conducted on the complete HBES/BACS switch which shall be controlled by the electronic extension units as described in the product instructions.

The electronic extension units are tested when installed according to the product instructions so as to verify that they are capable of controlling the electronic switch or the HBES/BACS switch in accordance with this Clause 19.

For electronic switches and HBES/BACS switches with included automatic function the number of operations for tests of 19.101, 19.102, 19.104, 19.106 and 19.108 is that specified in the relevant subclause. If the declared number of operations are higher than those indicated in the relevant subclause, the tests shall be made according to the declared value.”

6 Modification to 23.102.3

Replace in the first paragraph at the first occurrence “Table 107” with “Table 108”.

Replace in NOTE 101 “Table 107” with “Table 108”.

7 Modification to Clause 26, “EMC requirements”

Replace 26.1 as follows:

“26.1 General

Electronic control devices shall be designed to operate correctly under the conditions of the electromagnetic environment in which they are intended to be used. This applies particularly for electronic control devices intended to be connected to AC low-voltage public supply systems where the design shall take into account the normal disturbances on the supply system, as defined by the compatibility levels given in IEC 61000-2-2.

The tests are carried out with one new specimen.

Example of test set-ups are described in Annex DD.

For electronic control devices using Radio Technology, depending on the frequency, the RF-requirements of ETSI EN 300 328, ETSI EN 300 220-1, ETSI EN 300 220-2, ETSI EN 300 440, ETSI EN 301 489-1, ETSI EN 301 489-3, ETSI EN 301 489-4, ETSI EN 301 489-17 apply.

For EN 55015 and EN 55032, 80/80 rules shall not be considered as they do not ensure the presumption of conformity of the EMC and RED directive.

The use of dedicated software for testing purposes is allowed, providing that all significant functions are exercised.

For electronic switches and HBES/BACS switches, the manufacturer shall specify all details related to the load, as given in the manufacturer’s documentation.

26.1.1 For electronic control devices not using RF (Radio Frequency), 26.2 and 26.3 apply.

26.1.2 For electronic control devices using RF (Radio Frequency), 26.2 and 26.3 apply with the following additions:

Exclusion bands are defined in the EUT relevant part of ETSI EN 301 489 series. In the exclusion bands a temporary loss of RF transmission is allowed.

In case ETSI EN 301 489 series requests additional tests they shall be carried out and the RF functions shall meet the performance criteria.

For HBES/BACS switches using PL (power line), the emission requirements of EN 50065-1 and in addition the relevant requirements of EN 50065-2-2, EN 50065-2-3, EN 50561-1, EN 50561-2, EN 50561-3 apply.

Compliance is checked by the tests of 26.2 and 26.3.”

In 26.2.1 General:

Replace in the 2nd paragraph:

“manufacturers specifications” with “product instructions”

Replace the 5th paragraph with:

“The electronic control device shall be tested according to Table 113 with or without operation of the electronic control device as specified in the relevant paragraph of Clause 26.”

Replace in the last but one paragraph:

“As an alternative,” with “For devices,”

In 26.2.6 Radiated electromagnetic field test:

Replace the third paragraph with:

“The test is carried out according to IEC 61000-4-3 by applying requirements in Table 117 with the exception of the exclusion band as defined in the relevant product standard for transmitters, receivers and duplex transceivers, providing the device contains such transmitters, receivers and duplex transceivers.”

Add at the end of 5th paragraph:

“..., according to the intended use of the product”

In **Table 117**:

Replace note b with:

“A test level of 10 V/m applies except for the ITU broadcast frequency bands 87 MHz to 108 MHz, 174 MHz to 230 MHz and 470 MHz to 790 MHz.”

In **26.3.1 Low-frequency emission**:

Replace the 2nd paragraph with:

“Electronic control devices shall comply with IEC 61000-3-2:2018 and IEC 61000-3-3:2013 with IEC 61000-3-3:2013/AMD1:2017.”

Replace 26.3.2 as follows:

“26.3.2 Conducted radio-frequency emission on main, load/or control terminal:

Electronic control devices shall be so designed that they do not cause excessive radio interference.

The electronic control device shall comply with the requirements of CISPR 14-1:2016 or CISPR 15:2018¹.

For electronic control devices used for electrical lighting application CISPR 15:2018² applies.”

In **26.3.3 Conducted radio frequency emission 0,15 MHz to 30 MHz on TP media and communications terminals**:

Replace the 2nd and 3rd paragraph, and Table 118 with:

“Electronic control devices with communications terminals and HBES/BACS switches and their extension unit based on TP cable shall meet the class B conducted emission requirements of CISPR 32 Table A.12, as shown in Table 118.

Tests shall be performed on TP cable only according to the method defined in CISPR 32:2015³, as shown in Table 118.

Table 118 — Measurement methods

Terminal	Measurement method	Standard
TP media	Asymmetric Artificial Network (AAN)	CISPR 32
Telecommunication	Asymmetric Artificial Network (AAN)	CISPR 32
Asymmetric control line (2-core)	Voltage probe	CISPR 32
Telecommunication with more than 4 × 2 core and coaxial cable	Capacitive Voltage probe and current clamp	CISPR 32
Telecommunication with more than 4 × 2 core (with screen)	Capacitive Voltage probe and current clamp	CISPR 32

In **26.3.4 Radiated radio frequency emission above 30 MHz**:

Replace the 2nd paragraph with:

“Electronic control devices with communications terminals and HBES/BACS switches and their extension unit based on TP cable shall meet the class B requirements for radiated emission of CISPR 32 Tables A.4 and A.5.”

¹ Read in conjunction with CISPR 15:2018/ISH2019.

² Read in conjunction with CISPR 15:2018/ISH2019.

³ As amended by CISPR 32:2015/AMD:2019.

8 Modification to Clause 101, “Abnormal conditions”

In 101.2.4, replace the 2nd paragraph with:

“The test shall be carried out according to the protection method following Table 119”

In 101.4, replace “environment” with “surrounding” in the paragraph after Note 6.

In 102.3 Capacitors, replace the 1st paragraph with:

“Capacitors,

- the short circuiting or disconnection of which would cause an infringement of the requirements under fault conditions with regards to shock or fire hazard, or
- the short circuiting of which would cause a current of 0,5 A or more through the terminals of the capacitor, or
- for suppression of electromagnetic interference,

shall comply with IEC 60384-14 and shall be in accordance with Table 120.”

In 102.4 Resistors, replace the 3rd paragraph with:

“Compliance is checked by test a) or test b) depending on the type of the connection of the resistor as specified in a) or b) carried out on a sample of 10 specimen.”

9 Addition of Z.101, “Radio spectrum requirements”

Add the following new Clause:

“

Z.101 Radio spectrum requirements

For electronic control devices using RF (Radio Frequency), all tests related to the efficient and effective use of the radio spectrum of the applicable standards (e.g. ETSI EN 300 220 series, ETSI EN 300 328, ETSI EN 300 330, ETSI EN 300 440 and ETSI EN 301 511) apply to the complete electronic control device.”

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.

The Annex ZA of EN IEC 60669-1:2018 applies with the following changes:

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
<i>Add the following references:</i>				
IEC 60050-845	-	International Electrotechnical Vocabulary (IEV) - Part 845: Lighting	-	-
IEC 60068-2-78	-	Environmental testing - Part 2-78: Tests - Test Cab: Damp heat, steady-state	EN 60068-2-78	-
IEC 60127	series	Miniature fuses	EN 60127	series
IEC 60317	series	Specifications for particular types of winding wires	EN 60317	series
IEC 60317-0-1	2013	Specifications for particular types of winding wires - Part 0-1: General requirements - Enamelled round copper wire	EN 60317-0-1	2014
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 60664-1	2020	Insulation coordination for equipment within low-voltage supply systems - Part 1: Principles, requirements and tests	EN IEC 60664-1	2020
IEC 60669-1 (mod)	2017	Switches for household and similar fixed-electrical installations - Part 1: General requirements	EN 60669-1	2018
-	-		EN 60669-1:2018/ AC:2018-11	
IEC 60669-2-2	2006	Switches for household and similar fixed electrical installations - Part 2-2: Particular requirements - Electromagnetic remote-control switches (RCS)	EN 60669-2-2	2006

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<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60669-2-3	2006	Switches for household and similar fixed electrical installations - Part 2-3: Particular requirements - Time-delay switches (TDS)	EN 60669-2-3	2006
IEC 60670	series	Boxes and enclosures for electrical accessories for household and similar fixed electrical installations	EN IEC 60670	series
IEC 60704-1	-	Household and similar electrical appliances - Test code for the determination of airborne acoustical noise - Part 1: General requirements	EN IEC 60704-1	-
IEC 60715	-	Dimensions of low-voltage switchgear and controlgear - Standardized mounting on rails for mechanical support of switchgear, controlgear and accessories	EN 60715	-
IEC 60730	series	Automatic electrical controls	EN 60730	series
IEC 60990	-	Methods of measurement of touch current and protective conductor current	EN 60990	-
IEC 60999-1	-	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 mm ² up to 35 mm ² (included)	EN 60999-1	-
IEC 61000-2-2	-	Electromagnetic compatibility (EMC) - Part 2-2: Environment - Compatibility levels for low-frequency conducted disturbances and signalling in public low-voltage power supply systems	EN 61000-2-2	-
IEC 61000-3-2	2018	Electromagnetic compatibility (EMC) - Part 3-2: Limits - Limits for harmonic current emissions (equipment input current ≤ 16 A per phase)	EN IEC 61000-3-2	2019
IEC 61000-3-3	2013	Electromagnetic compatibility (EMC) - 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	EN 61000-3-3	2013
+ A1	2017		+ A1	2019
IEC 61000-4-2	-	Electromagnetic compatibility (EMC) - Part 4-2: Testing and measurement techniques - Electrostatic discharge immunity test	EN 61000-4-2	-
IEC 61000-4-3	-	Electromagnetic compatibility (EMC) - Part 4-3: Testing and measurement techniques - Radiated, radio-frequency, electromagnetic field immunity test	EN IEC 61000-4-3	-
IEC 61000-4-4	-	Electromagnetic compatibility (EMC) - Part 4-4: Testing and measurement techniques - Electrical fast transient/burst immunity test	EN 61000-4-4	-