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

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: prEN IEC 60669-2-1:2026

[oSIST prEN IEC 60669-2-1:2026](https://standards.sist.si/914a0219-5c8b-4747-8c53-0b6c388b3635/oSIST-prEN-IEC-60669-2-1-2026)

<https://standards.sist.si/914a0219-5c8b-4747-8c53-0b6c388b3635/oSIST-prEN-IEC-60669-2-1-2026>

ICS:

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

oSIST prEN IEC 60669-2-1:2026

en,fr,de



23B/1596/CDV

COMMITTEE DRAFT FOR VOTE (CDV)

PROJECT NUMBER:

IEC 60669-2-1 ED6

DATE OF CIRCULATION:

2026-01-16

CLOSING DATE FOR VOTING:

2026-04-10

SUPERSEDES DOCUMENTS:

23B/1563/CD, 23B/1570A/CC

IEC SC 23B : PLUGS, SOCKET-OUTLETS AND SWITCHES

SECRETARIAT:

Italy

SECRETARY:

Mr Cristiano Masini

OF INTEREST TO THE FOLLOWING COMMITTEES:

TC 34, TC 72

HORIZONTAL FUNCTION(S):

ASPECTS CONCERNED:

Electromagnetic Compatibility, Safety

☒ SUBMITTED FOR CENELEC PARALLEL VOTING☐ NOT SUBMITTED FOR CENELEC PARALLEL VOTING**Attention IEC-CENELEC parallel voting**

The attention of IEC National Committees, members of CENELEC, is drawn to the fact that this Committee Draft for Vote (CDV) is submitted for parallel voting.

The CENELEC members are invited to vote through the CENELEC online voting system.

oSIST prEN IEC 60669-2-1:2026

This document is still under study and subject to change. It should not be used for reference purposes.

Recipients of this document are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

Recipients of this document are invited to submit, with their comments, notification of any relevant "In Some Countries" clauses to be included should this proposal proceed. Recipients are reminded that the CDV stage is the final stage for submitting ISC clauses. (SEE [AC/22/2007](#) OR [NEW GUIDANCE DOC](#)).

TITLE:

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

PROPOSED STABILITY DATE: 2030

NOTE FROM TC/SC OFFICERS:

Copyright © 2025 International Electrotechnical Commission, IEC. All rights reserved. It is permitted to download this electronic file, to make a copy and to print out the content for the sole purpose of preparing National Committee positions. You may not copy or "mirror" the file or printed version of the document, or any part of it, for any other purpose without permission in writing from IEC.

CONTENTS

1		
2	CONTENTS	2
3	FOREWORD	6
4	1 Scope	9
5	2 Normative references	10
6	3 Terms and definitions	12
7	4 General requirements	18
8	5 General remarks on tests	18
9	6 Ratings	21
10	7 Classification	21
11	8 Marking	23
12	9 Checking of dimensions	26
13	10 Protection against electrical shock	26
14	11 Provision for earthing	29
15	12 Terminals	29
16	13 Constructional requirements	30
17	14 Mechanism	32
18	15 Resistance to ageing, protection provided by enclosures of switches and	
19	resistance to humidity	32
20	16 Insulation resistance and electric strength	32
21	17 Temperature rise	34
22	18 Making and breaking capacity	42
23	19 Normal operation	42
24	20 Mechanical strength	51
25	21 Resistance to heat	52
26	22 Screws, current-carrying parts and connections	52
27	23 Creepage distances, clearances and distances through sealing compound	52
28	24 Resistance of insulating material to abnormal heat, to fire and to tracking	64
29	25 Resistance to rusting	64
30	26 EMC requirements	64
31	101 Abnormal conditions	73
32	102 Components	81
33	103 Electromagnetic fields (EMF)	87
34	Annex A (normative) <i>Replacement of title to Annex A as follows:</i> Additional	
35	requirements for electronic control devices having facilities for the outlet and	
36	retention of flexible cables	88
37	Annex B (informative) Changes planned for the future in order to align IEC 60669-1	
38	with the requirements of IEC 60998 (all parts), IEC 60999 (all parts) and	
39	IEC 60228	89
40	Annex C (informative) Circuit development (19.3)	90
41	Annex D (informative) Additional requirements for insulation-piercing terminals	91
42	Annex E (informative) Additional requirements and tests for switches intended to be	
43	used at a temperature lower than -5°C	92
44	Annex AA (informative) Examples of types of electronic switches or HBES/BACS	
45	switches and their functions	97

IEC CDV 60669-2-1 © IEC 2025

46	Annex BB (informative) Circuit development: 19.102.3 explained	98
47	Annex CC (normative) Additional requirements for electronic control devices using	
48	DLT-technology in accordance with IEC 62756-1	104
49	Annex DD (informative) Test set-ups	106
50	Annex EE (informative) Electrical interface specification for phase-cut dimmer in	
51	phase-cut dimmed lighting systems	112
52	Annex FF (normative) Additional requirements for electronic RCS and electronic TDS	
53	that provide the function, markings, and connection configuration in accordance	
54	with IEC 60669-2-2 and IEC 60669-2-3	143
55	Annex GG (informative) Test procedure for the tests of subclause 101.2.3	149
56	Annex HH (informative) Temperature rise test for control gear dimmed in leading	
57	edge: 17.101.4 explained	150
58	Annex II (informative) Additional tests and requirements for accessories intended to	
59	be used in ambient temperatures above +35 °C up to and including +70 °C	151
60	Annex JJ	155
61	Bibliography	161
62		
63	Figure 101 – Electronic control device with two switching circuits	18
64	Figure 102 – Test pin for checking the protection against electric shock	28
65	Figure 103 – Current path tested in the looping through circuit	39
66	Figure 104 – Circuit diagram for testing electronic switches and HBES/BACS switches	40
67	Figure 105 – Protective separation between circuits	54
68	Figure 106 – Multilayer printed circuit board example	59
69	Figure 107 – Surge test	81
70	Figure BB.1 – 120 V 15 W (LT spice model)	99
71	Figure BB.2 – 230 V 15 W (LT spice model)	100
72	Figure BB.3 – Model for multiple lamp loads	101
73	Figure BB.4 – I_{peak} and I^2t for multiple lamp loads	101
74	Figure DD.1 – Test setup for AC mains connection according to IEC 61000-4-4	106
75	Figure DD.2 – Test setup for bus and DC mains connection according to	
76	IEC 61000-4-4	107
77	Figure DD.3 – Test setup for AC mains connection according to IEC 61000-4-5	108
78	Figure DD.4 – Test setup for bus and DC mains connection according to	
79	IEC 61000-4-5	109
80	Figure DD.6 – Test setup for AC mains connection according to IEC 61000-4-6	110
81	Figure DD.7 – Test setup for bus and DC mains connection according to	
82	IEC 61000-4-6	111
83	Figure EE.1 – Example of wiring diagram	115
84	Figure EE.2 – Timing leading edge dimming method	118
85	Figure EE.3 – Timing trailing edge dimming method	123
86	Figure EE.4 – Circuit to test the properties of the phase-cut dimmer during the non-	
87	conducting phase (Method 1)	129
88	Figure EE.5 – Circuit to test the properties of the phase-cut dimmer during the non-	
89	conducting phase (Method 2)	130
90	Figure EE.6 – Circuit to test the properties of the phase-cut dimmer during the	
91	transition from the non-conducting to the conducting phase	131

92	Figure EE.7 – Circuit to test the properties of the phase-cut dimmer during the	
93	electronic off-state	133
94	Figure EE.8 – Waveform of AC voltage source – Leading edge	134
95	Figure EE.9 – Waveform of AC voltage source – Trailing edge	134
96	Figure EE.10 – Equivalent circuit for controlgear in the on state to be used during	
97	dimmer tests	135
98	Figure EE.11 – Equivalent circuit for controlgear being in off state	136
99	Figure EE.12 – Test enclosure	139
100	Figure EE.13 – Geometry of microphone placement in regard to device under test	139
101	Figure EE.14 – Test circuit to test stability of phase angle	140
102	Figure EE.15 – Possibilities for proper triggering	141
103	Figure EE.16 – Equivalent circuit EC_CG2	142
104		
105	Table 1 – Specimens needed for the tests	19
106	Table 15 – Test voltage, points of application and minimum values of insulating	
107	resistance for the verification of electric strength	33
108	Table 16 – Cross-sectional areas of copper conductors for the temperature-rise test	35
109	Table 101 – Permissible temperature rise values	36
110	Table 102 – Application of tests for normal operation for electronic switches and	
111	HBES/BACS switches	43
112	Table 103 – Values for I_{peak} and I^2t depending on the type of distribution system	46
113	Table 104 – Calculated circuit parameters	46
114	Table 105 – Test loads for electronic switches and HBES/BACS switches for heating	
115	installations	48
116	Table 23 – Creepage distances, clearances and distances through insulating sealing	
117	compound	52
118	Table 107 – Relation between the rated voltage of the HBES/BACS switch, the rated	
119	insulation voltage and the rated impulse voltage	56
120	Table 108 – Minimum clearances without verification test	57
121	Table 109 – Test voltages and corresponding altitudes	58
122	Table 110 – Minimum clearances with verification test	58
123	Table 111 – Minimum creepage distances of basic, supplementary and reinforced	
124	insulation without verification test for clearances	59
125	Table 112 – Minimum creepage distances of basic, supplementary and reinforced	
126	insulation with verification test for clearances	59
127	Table 113 – Type of insulation	61
128	Table 114 – Immunity tests (overview)	66
129	Table 115 – Voltage dip and short-interruption test values	66
130	Table 116 – Surge immunity test voltages	67
131	Table 117 – Fast transient test values	68
132	Table 118 – Values for radiated electromagnetic field test of IEC 61000-4-3 ^a	70
133	Table 119 – Cross-sectional areas of copper conductors and maximum test currents	74
134	Table 120 – Capacitors	81
135	Table A.101 – Maximum current and minimum cross-sectional area	88
136	Table E.101 – Energy for impact tests	95
137	Table AA.1 – Functions overview	97

IEC CDV 60669-2-1 © IEC 2025

138	Table BB.1 – Lamp	98
139	Table EE.1 – Nominal mains voltage 100 V – Frequency 50 Hz or 60 Hz	119
140	Table EE.2 – Nominal mains voltage 120 V – Frequency 50 Hz or 60 Hz	119
141	Table EE.3 – Nominal mains voltage 200 V – Frequency 50 Hz or 60 Hz	119
142	Table EE.4 – Nominal mains voltage 230 V – Frequency 50 Hz or 60 Hz	119
143	Table EE.5 – Nominal mains voltage 277 V – Frequency 50 Hz or 60 Hz	119
144	Table EE.6 – Slew rate for voltage decrease across the phase-cut dimmer	120
145	Table EE.7 – Nominal mains voltage 100 V – Frequency 50 Hz or 60 Hz	121
146	Table EE.8 – Nominal mains voltage 120 V – Frequency 50 Hz or 60 Hz	121
147	Table EE.9 – Nominal mains voltage 200 V – Frequency 50 Hz or 60 Hz	121
148	Table EE.10 – Nominal mains voltage 230 V – Frequency 50 Hz or 60 Hz	121
149	Table EE.11 – Nominal mains voltage 277 V – Frequency 50 Hz or 60 Hz	122
150	Table EE.12 – Nominal mains voltage from 100 V to 277 V – Frequency 50 Hz or	
151	60 Hz	124
152	Table EE.13 – Nominal mains voltage 100 V – Frequency 50 Hz or 60 Hz	125
153	Table EE.14 – Nominal mains voltage 120 V – Frequency 50 Hz or 60 Hz	125
154	Table EE.15 – Nominal mains voltage 200 V – Frequency 50 Hz or 60 Hz	125
155	Table EE.16 – Nominal mains voltage 230 V – Frequency 50 Hz or 60 Hz	126
156	Table EE.17 – Nominal mains voltage 277 V – Frequency 50 Hz or 60 Hz	126
157	Table EE.18 – Currents and voltages for controlgear during the electronic off state	127
158	Table EE.19 – Parameters for testing purposes	128
159	Table EE.20 – Parameters for testing purposes	137

160

161

Document Preview

oSIST prEN IEC 60669-2-1:2026

<https://standards.iteh.ai/catalog/standards/sist/914a0219-5efb-4747-8e53-0b6e388b5635/osist-pren-iec-60669-2-1-2026>