

**Switches for household and similar  
fixed electrical installations – Collateral  
standard – Switches and related  
accessories for use in home and  
building electronic systems (HBES)**

Switches for household and similar fixed electrical  
installations – Collateral standard – Switches and  
related accessories for use in home and building  
electronic systems (HBES)

## EESTI STANDARDI EESSÕNA

## NATIONAL FOREWORD

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| <p>Käesolev Eesti standard EVS-EN 50428:2005 sisaldab Euroopa standardi EN 50428:2005 ingliskeelset teksti.</p> <p>Käesolev dokument on jõustatud 06.07.2005 ja selle kohta on avaldatud teade Eesti standardiorganisatsiooni ametlikus väljaandes.</p> <p>Standard on kättesaadav Eesti standardiorganisatsioonist.</p> | <p>This Estonian standard EVS-EN 50428:2005 consists of the English text of the European standard EN 50428:2005.</p> <p>This document is endorsed on 06.07.2005 with the notification being published in the official publication of the Estonian national standardisation organisation.</p> <p>The standard is available from Estonian standardisation organisation.</p> |
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| <p><b>Käsitlusala:</b></p> <p>This collateral standard applies to HBES switches with a working voltage not exceeding 250 V a.c. and a rated current up to and including 16 A. for household and similar fixed electrical installations either indoors or outdoors and to associated electronic extension units.</p> | <p><b>Scope:</b></p> <p>This collateral standard applies to HBES switches with a working voltage not exceeding 250 V a.c. and a rated current up to and including 16 A. for household and similar fixed electrical installations either indoors or outdoors and to associated electronic extension units.</p> |
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**ICS** 29.120.40, 97.120

**Võtmesõnad:** actuators, classification, control devices, domestic, electrical safety

**Switches for household and similar fixed electrical installations –  
Collateral standard –  
Switches and related accessories for use  
in home and building electronic systems (HBES)**

Interrupteurs pour installations électriques  
fixes domestiques et analogues –  
Norme collatérale –  
Interrupteurs et appareils associés  
pour usage dans les systèmes  
électroniques des foyers domestiques  
et bâtiments (HBES)

Schalter für Haushalt und ähnliche  
ortsfeste elektrische Installationen –  
Ergänzungsnorm –  
Schalter und ähnliches Installations-  
material in elektronischer Systemtechnik  
für Heim und Gebäude (ESHG)

This European Standard was approved by CENELEC on 2004-12-07. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard 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 Central Secretariat or to any CENELEC member.

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## CENELEC

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

**Central Secretariat: rue de Stassart 35, B - 1050 Brussels**

## Foreword

This European Standard has been prepared by the Technical Committee CENELEC TC 23B: Switches for household and similar fixed electrical installations.

The text of the draft was submitted to the Unique Acceptance Procedure and was approved by CENELEC as EN 50428 on 2004-12-07.

The following dates were fixed:

- |  |       |            |
|--|-------|------------|
| – latest date by which the EN has to be implemented at national level by publication of an identical national standard or by endorsement | (dop) | 2006-01-01 |
| – latest date by which the national standards conflicting with the EN have to be withdrawn   | (dow) | 2008-01-01 |

This European Standard has been prepared under a mandate given to CENELEC by the European Commission and the European Free Trade Association and covers essential requirements of EC Directive 89/336/EEC. See Annex ZZ.

This standard has to be used in conjunction with EN 60669-1 and EN 60669-2-1. It lists the additional changes necessary to convert it into the European Standard: *Switches for household and similar fixed electrical installations - Collateral standard - Switches and related accessories for use in home and building electronic systems (HBES)*

When this standard states "addition", "modification" or "replacement", the relevant text of EN 60669-1 or EN 60669-2-1 (hereinafter called Part 1 and Part 2-1 respectively) is to be adapted accordingly.

NOTE The following numbering system is used:

- subclauses, tables and figures that are numbered starting from 201 are additional to those in Part 2-1;
  - additional annexes to Part 1 are lettered AA, BB, etc.
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## 1 Scope

This clause of Part 2-1 is replaced by the following:

This collateral standard applies to HBES switches with a working voltage not exceeding 250 V a.c. and a rated current up to and including 16 A. for household and similar fixed electrical installations either indoors or outdoors and to associated electronic extension units.

It applies

- to HBES switches 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 (e.g. those used in ventilating fans) and for other purposes (e.g. heating installations ),
- to sensors, actuators, switched-socket-outlets, associated electronic extension units, etc

In the following document the word " HBES switch " is applied to describe all kind of HBES devices e.g. switches, sensors, actuators, switched-socket-outlets, associated electronic extension units, etc.

The operation and control are performed

- intentionally by a person via an actuating member, a key, a card, etc., via a sensing surface or a sensing unit, by means of touch, proximity, turn, optical, acoustic, thermal,
- by physical means, e.g. light, temperature, humidity, time, wind velocity, presence of people,
- by any other influence;

and transmitted

- by an electronic signal via several media, e.g. powerline (mains), twisted pair, optical fibre, radio frequency, infra-red, etc...

HBES Switches complying with this standard are suitable for use at ambient temperatures not normally exceeding 25 °C, but occasionally reaching 35 °C.

There is no need for functional safety requirements in this standard. Functional safety requirements shall be covered by the standards of the devices which are controlled by the HBES.

In locations where special conditions prevail, such as higher temperature special constructions may be required.

NOTE 1 This annex is not intended to cover devices falling within the scope of IEC 60730.

NOTE 2 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.

NOTE 3 HBES-switches to be connected to telecommunication networks should fulfil the relevant standard.

## 2 Normative references

Annex ZA of Part 2-1 is applicable with the following additions:

EN 50065-1, Signalling on low-voltage electrical installations in the frequency range 3 kHz to 148,5 kHz – Part 1: General requirements, frequency bands and electromagnetic disturbances

EN 50065-2-1, Signalling on low-voltage electrical installations in the frequency range 3 kHz to 148,5 kHz -- Part 2-1: Immunity requirements for mains communications equipment and systems operating in the range of frequencies 95 kHz to 148,5 kHz and intended for use in residential, commercial and light industrial environments

EN 50065-2-3, Signalling on low-voltage electrical installations in the frequency range 3 kHz to 148,5 kHz -- Part 2-3: Immunity requirements for mains communications equipment and systems operating in the range of frequencies 3 kHz to 95 kHz and intended for use by electricity suppliers and distributors



EN 50090-2-2 Home and building electronic systems (HBES) – Part 2-2: System overview – General technical requirements

EN 55022:1994, Information technology equipment - Radio disturbance characteristics - Limits and methods of measurement (CISPR 22:1993)

EN 60664-1:2003, Insulation coordination for equipment within low-voltage systems – Part 1: Principles, requirements and tests (IEC 60664-1:1992 + A1:2000 + A2:2002)

EN 60669-1, Switches for household and similar fixed-electrical installations – Part 1: General requirements (IEC 60669-1)

EN 60669-2-1, Switches for household and similar fixed electrical installations – Part 2-1: Particular requirements - Electronic switches (IEC 60669-2-1)

EN 61140:2002, Protection against electric shock - Common aspects for installation and equipment (IEC 61140:2001)

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

ETSI EN 300 220-1, Electromagnetic compatibility and Radio spectrum Matters (ERM); Short Range Devices (SRD); Radio equipment to be used in the 25 MHz to 1 000 MHz frequency range with power levels ranging up to 500 mW – Part 1: Technical characteristics and test methods

ETSI EN 300 220-3, Electromagnetic compatibility and Radio spectrum Matters (ERM); Short Range Devices (SRD); Radio equipment to be used in the 25 MHz to 1 000 MHz frequency range with power levels ranging up to 500 mW – Part 3: Harmonized EN covering essential requirements under article 3.2 of the R&TTE Directive

ETSI EN 301 489-3, Electromagnetic compatibility and Radio spectrum Matters (ERM); Electromagnetic Compatibility (EMC) standard for radio equipment and services – Part 3: Specific conditions for Short-Range Devices (SRD) operating on frequencies between 9 kHz and 40 GHz

HD 384.4.41 S2:1996, Electrical installations of buildings – Part 4: Protection for safety – Chapter 41: Protection against electric shock (IEC 60364-4-41:1992, modified)

### 3 Definitions

This clause of Part 2-1 is applicable with the following additions:

#### 3.201

##### **HBES switch**

device using two way communication designed to make or break and/or to control, directly (e.g. actuator) or indirectly (e.g. sensor), the current in one or more electric circuits. The communication can use different media e.g. Twisted Pair (TP), Power Line (PL), Infra Red (IR) and Radio Frequency (RF)

NOTE To make or break and/or to control directly means that an actuator makes or breaks the current and/or controls the current.

#### 3.202

##### **ELV**

for the purpose of this standard, a voltage not exceeding 50 V a.c. or d.c. between conductors, or in the case of three-phase circuits, not exceeding 29 V between conductors and neutral, the no-load voltage of the circuit not exceeding 50 V and 29 V, respectively

NOTE The use of ELV other than for protection by SELV or PELV in such circuits is not a protective measure.

#### 3.203

##### **SELV system**

an electrical system in which the voltage cannot exceed ELV

- under normal conditions
- under single fault conditions, including earth faults in other circuits