



# SLOVENSKI STANDARD

## SIST HD 60364-4-46:2017

01-januar-2017

Nadomešča:

SIST HD 384.4.46 S2:2002

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**Nizkonapetostne električne inštalacije - 4-46. del: Zaščitni ukrepi - Ločevanje in stikanje**

Low-voltage electrical installations - Part 4-46: Protection for safety - Isolation and switching

Errichten von Niederspannungsanlagen - Teil 4-46: Schutzmaßnahmen - Trennen und Schalten

Installations électriques à basse tension - Partie 4-46 : Protection pour assurer la sécurité - Sectionnement et commande

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**Ta slovenski standard je istoveten z: HD 60364-4-46:2016**

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**ICS:**

29.120.50	Varovalke in druga medtokovna zaščita	Fuses and other overcurrent protection devices
91.140.50	Sistemi za oskrbo z elektriko	Electricity supply systems

**SIST HD 60364-4-46:2017**

**en,fr**

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HARMONIZATION DOCUMENT  
DOCUMENT D'HARMONISATION  
HARMONISIERUNGSDOKUMENT

**HD 60364-4-46**

November 2016

ICS 29.120.50; 91.140.50

Supersedes HD 384.4.46 S2:2001

English Version

Low-voltage electrical installations -  
Part 4-46: Protection for safety -  
Isolation and switching

Installations électriques à basse tension -  
Partie 4-46 : Protection pour assurer la sécurité -  
Sectionnement et commande

Errichten von Niederspannungsanlagen -  
Teil 4-46: Schutzmaßnahmen -  
Trennen und Schalten

This Harmonization Document was approved by CENELEC on 2016-07-04. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for implementation of this Harmonization Document at national level.

Up-to-date lists and bibliographical references concerning such national implementations may be obtained on application to the CEN-CENELEC Management Centre or to any CENELEC member.

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This Harmonization Document exists in three official versions (English, French, German).

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

**CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels**

<b>Contents</b>	<b>Page</b>
European foreword .....	3
460 Introduction .....	4
460.1 Scope.....	4
460.2 Normative references .....	4
461 General .....	4
462 Isolation .....	4
463 Functional switching (control) .....	5
463.1 General .....	5
463.2 Auxiliary circuits .....	6
463.3 Motor control .....	6
464 Switching off for mechanical maintenance .....	6
465 Emergency switching off.....	7
Annex A (informative) Explanation of emergency operation functions.....	8
A.1 General .....	8
A.2 Emergency operation .....	8
A.3 Emergency stop .....	8
A.4 Emergency start .....	8
A.5 Emergency switching off.....	8
A.6 Emergency switching on.....	8
Annex B (normative) Special national conditions.....	9
Annex C (informative) A-deviations .....	11

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[SIST HD 60364-4-46:2017](https://standards.iteh.ai/catalog/standards/sist/c1dcf745-06a3-4577-9e8-2a77f6da1ac/sist-hd-60364-4-46-2017)

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## European foreword

This document (HD 60364-4-46:2016) was prepared by CLC/TC 64 “Electrical installations and protection against electric shock”.

The following dates are fixed:

- latest date by which the document has to be implemented (dop) 2017-05-11  
at national level by publication of an identical national  
standard or by endorsement
- latest date by which the national standards conflicting with (dow) 2019-11-11  
the document have to be withdrawn

This document supersedes HD 384.4.46 S2:2001.

HD 60364-4-46:2016 includes the following significant technical changes with respect to the previous edition: the contents of this document has been revised so that it only includes general requirements on measures for isolation and switching to provide for the safety of persons, livestock and property.

NOTE Complementarily the text of HD 60364-5-537:2016 has been adapted to give requirements on implementation of the measures provided in HD 60364-4-46:2016 and requirements for proper functioning, in terms of selection and erection of electrical equipment for isolation and switching.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CENELEC [and/or CEN] shall not be held responsible for identifying any or all such patent rights.

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**HD 60364-4-46:2016 (E)****460 Introduction****460.1 Scope**

This Harmonization Document deals with

- non-automatic local and remote isolation and switching measures which prevent or remove dangers associated with electrical installations or electrically powered equipment; and
- switching for the control of circuits or equipment.

**460.2 Normative references**

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

HD 60364-4-41, *Low-voltage electrical installations – Part 4-41: Protection for safety – Protection against electric shock* (IEC 60364-4-41)

HD 60364-5-53:2015-11, *Low-voltage electrical installations – Part 5-53: Selection and erection of electrical equipment - Switchgear and controlgear*

HD 60364-5-557:2013 + A11:2016, *Low-voltage electrical installations – Part 5-557: Selection and erection of electrical equipment – Auxiliary circuits* (IEC 60364-5-55:2011/A1:2012)

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**461 General**

**461.1** According to the intended function(s), every device provided for isolation or switching shall comply with the relevant requirements of HD 60364-5-53:2016

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NOTE Clause 537 of HD 60364-5-53:2015-11 refers to HD 384.5.537 S2, which is now replaced by HD 60364-5-537:2016.

**461.2** In TN-C systems and in the TN-C part of the TN-C-S systems, the PEN conductor shall not be isolated or switched.

In TN-S systems and in the TN-S part of the TN-C-S systems, isolation or switching of the neutral conductor is not required if protective equipotential bonding is installed and either

- the neutral conductor is reliably connected to earth by a low resistance to meet the disconnection times of the protective devices according to the requirements of HD 60364-4-41 or
- the distribution system operator (DSO) declares that either the PEN or the N conductor of the supply is reliably connected to earth by a low resistance to meet the disconnection times of the protective devices according to the requirements of HD 60364-4-41.

**462 Isolation**

**462.1** Each electrical installation shall have provisions for isolation from each supply.

**462.2** Every circuit shall be provided with isolation means for all live conductors, except as detailed in 461.2.

Provisions may be made for isolation of a group of circuits by a common means, if the service conditions allow this.

**462.3** Suitable means shall be provided to prevent any equipment from being unwantedly or unintentionally energized/operated.

**462.4** Where residual electrical energy is potentially present, suitable means shall be provided for its discharge.

Where relevant, a warning label indicating the discharge time or the delay required before the enclosure may be opened shall be provided.

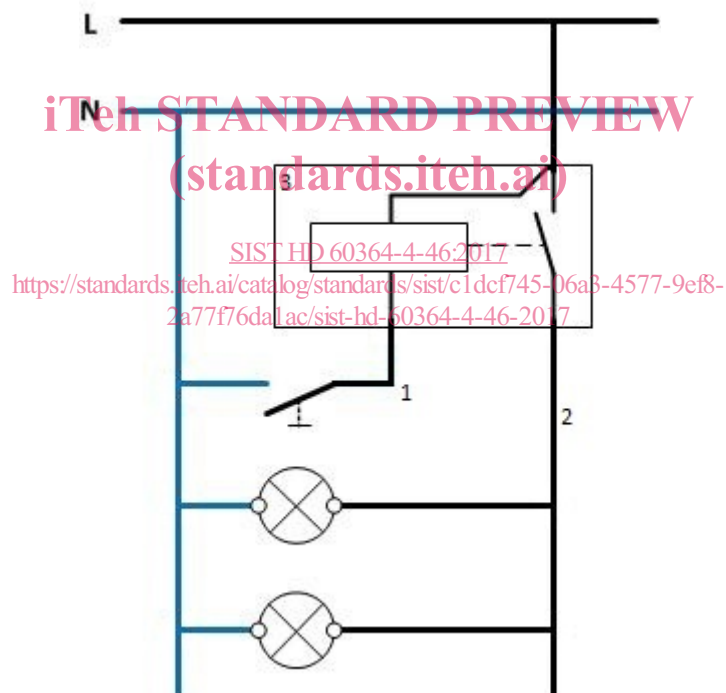
NOTE Storage units do not need to be discharged since they are considered to be supply sources.

## 463 Functional switching (control)

### 463.1 General

**463.1.1** Functional switching shall be provided for each part of a circuit which may require to be controlled independently of other parts of the installation.

**463.1.2** Functional switching devices need not necessarily switch off all live conductors of a circuit. A single-pole switching device shall not be placed in the neutral conductor except for the connection of the control device for lighting circuits, see Figure 46.1.



#### Key

- 1 connection of the control device for lighting circuits
- 2 circuit supplying the lamps
- 3 control device

**Figure 46.1 — Lamp control circuit with switching in the neutral conductor**

Switching of the neutral shall be in compliance with HD 60364-5-53:2015-11, 530.4.2.

**HD 60364-4-46:2016 (E)**

**463.1.3** In general, all current-using equipment requiring control shall be controlled by an appropriate functional switching device.

A single-functional switching device may control several items of current using equipment intended to operate simultaneously.

**463.1.4** Functional switching devices ensuring the change-over of supply from alternative sources shall switch off all live conductors and shall not be capable of putting the sources in parallel, unless the installation is specifically designed for this condition.

**463.2 Auxiliary circuits**

Auxiliary circuits shall be designed, arranged and protected to limit dangers resulting from a fault in the auxiliary circuit or an insulation fault between the auxiliary circuit and other conductive parts liable to cause malfunction (e.g. inadvertent operations) of the controlled apparatus (see HD 60364-5-557).

**463.3 Motor control**

**463.3.1** Motor control circuits shall be designed so as to prevent any motor from restarting automatically after a stoppage due to a fall in or loss of voltage, if such starting is liable to cause danger.

Earth faults in control circuits should not cause unintentional starting, potentially hazard motion, or prevent stopping of motor.

**463.3.2** Where reverse-current braking of a motor is provided, provision shall be made for the avoidance of reversal of the direction of rotation at the end of braking if such reversal may cause danger.

**463.3.3** Where safety depends on the direction of rotation of a motor, provision shall be made for the prevention of reverse operation due to a reversal of phases.

NOTE Attention is called to danger which can arise from the loss of one phase.

**464 Switching off for mechanical maintenance**

**464.1** Means for switching off shall be provided where mechanical maintenance may involve a risk of physical injury.

The switching off shall cause the disconnection of all live conductors, except as provided in 461.2, by a device suitable for isolation.

Electrically powered mechanical equipment may include rotating machines as well as heating elements and electromagnetic equipment.

Systems powered by other means, e.g. pneumatic, hydraulic or steam, are not covered by these rules. In such cases, switching off any associated supply of electricity may not be a sufficient measure.

**464.2** Suitable means shall be provided to prevent electrically powered equipment from becoming unwantedly or unintentionally reactivated during mechanical maintenance, unless the means of switching off is continuously under the control of any person performing such maintenance.



## 465 Emergency switching off

NOTE In the informative Annex A, a proposal for definitions of emergency operation is reported.

**465.1** Means shall be provided for emergency switching off of any part of an installation where it may be necessary to control the supply to remove an unexpected danger.

**465.2** Where a risk of electric shock or another risk of electrical origin is involved, the emergency switching off shall cause the disconnection of all live conductors, except as provided in 461.2, by a device suitable for isolation.

**465.3** Means for emergency switching off, shall act as directly as possible on the appropriate supply conductors.

The arrangement for emergency switching off shall be such that one single action only will interrupt the appropriate supply.

**465.4** The arrangement of the emergency switching shall be such that its operation does not introduce a further danger or interfere with the complete operation necessary to remove the danger.

NOTE The operation of the switching device is to be understood as switching off in case of emergency and switching on to reenergize the relevant circuit.

The emergency operation function shall not impair the effectiveness of protective devices or of devices with other safety functions.

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