

SLOVENSKI STANDARD

oSIST prHD 60364-5-537:2014

01-december-2014

Nadomešča:

SIST HD 384.5.537 S2:2002

Električne inštalacije zgradb - 5-53. del: Izbira in namestitvev električne opreme - Stikalne in krmilne naprave - 537. oddelek: Naprave za ločevanje in stikanje

Low voltage electrical installations - Part 5-53: Selection and erection of electrical equipment - Switchgear and controlgear - Clause 537: Isolation and switching

Errichten von Niederspannungsanlagen - Teil 5: Auswahl und Errichtung elektrischer Betriebsmittel - Kapitel 53: Schaltgeräte und Steuergeräte - Abschnitt 537: Geräte zum Trennen und Schalten

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Installations électriques basse tension - Partie 5-53: Choix et mise en œuvre des matériels - Appareillage - Article 537: Sectionnement et coupure

Ta slovenski standard je istoveten z: prHD 60364-5-537:2014

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 |

oSIST prHD 60364-5-537:2014

en,fr,de

HARMONIZATION DOCUMENT
DOCUMENT D'HARMONISATION
HARMONISIERUNGSDOKUMENT

DRAFT
prHD 60364-5-537

August 2014

ICS 29.120.50; 91.140.50

Will supersede HD 384.5.537 S2:1998

English Version

**Low voltage electrical installations - Part 5-53: Selection and
erection of electrical equipment - Switchgear and controlgear -
Clause 537: Isolation and switching**

Installations électriques basse tension - Partie 5-53: Choix
et mise en œuvre des matériels - Appareillage - Article 537:
Sectionnement et coupure

Errichten von Niederspannungsanlagen - Teil 5: Auswahl
und Errichtung elektrischer Betriebsmittel - Kapitel 53:
Schaltgeräte und Steuergeräte - Abschnitt 537: Geräte zum
Trennen und Schalten

This draft Harmonization Document is submitted to CENELEC members for enquiry.
Deadline for CENELEC: 2015-01-23.

It has been drawn up by CLC/TC 64.

If this draft becomes a Harmonization Document, CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for implementation of this Harmonization Document on a national level.

This draft Harmonization Document was established by CENELEC in three official versions (English, French, German).

CENELEC members are the national electrotechnical committees of Austria, Belgium, Bulgaria, Croatia, Cyprus, the Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

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

Warning : This document is not a Harmonization Document. It is distributed for review and comments. It is subject to change without notice and shall not be referred to as a Harmonized Document.



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

Foreword

This document (prHD 60364-5-537:2014) was prepared by CLC/TC 64 “Electrical installations and protection against electric shock”.

This document is currently submitted to the enquiry.

This document will supersede HD 384.5.537 S2:1998.

Secretary note: During its last plenary meeting, CLC/TC 64 took the following decision:

WG7 has prepared a first draft of the revision of HD 60364-5-537 that is now submitted to the National Committees as first enquiry.

D8) The plenary supported the proposal of WG 7 to integrate HD 384-5-537 in the new part 53. The plenary asked WG 7 to have a look at part 46 with respect to possible integration into part 53 and report back the result of this analysis at the next TC 64 meeting

The text of this first enquiry of prHD 60364-5-537 has been kept separated from the prHD 60364-4-46 since the present structure of HD 60364 is to be kept unchanged until TC 64 decides otherwise.

Also, taking into account that in the next CLC/TC 64 plenary meeting TC 64 may decide to integrate prHD 60364-4-46 into prHD 60364-5-537, this project is presented separated from the general project prHD 60364-5-53 (project 24327).

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537 Isolation and switching

537.1 General

537.1.1 Any device for isolation and switching according to Sections 462 to 465 shall comply with the relevant requirements included in this clause.

General and common requirements of Clause 530.4 apply.

NOTE 1 In certain instances, additional requirements may be necessary for combined functions.

NOTE 2 The Table A.1 of the Annex A summarizes the functions provided by the devices for isolation and switching, together with indication of the relevant product standards.

NOTE 3 For some applications such as motor control, the switching equipment needs to withstand the inrush current.


537.1.2 Where an installation or an item of equipment or enclosure contains live parts connected to more than one supply, a durable warning notice shall be placed in such a position that any person before gaining access to live parts, will be warned of the need to isolate those parts from the various supplies unless an interlocking arrangement is provided to ensure that all the circuits concerned are isolated.

537.2 Devices for Isolation

Selection and erection of devices for isolation shall be in accordance with the following subclauses.

537.2.1 Devices for isolation shall be devices for which the isolation function is explicitly recognized by the relevant product standard.

The suitability for isolation is indicated in:

- the manufacturer's instructions; and/or
- by the vertical line used in the following symbol  marked on the product.

NOTE The symbol might be combined with other markings depending on the functionality of the device.

537.2.2 The devices providing isolation function shall be selected in accordance with Annex A.

537.2.3 Semiconductor devices shall not be used as isolating devices.

537.2.4 Devices suitable for isolation shall be selected according to the requirements which are based on the overvoltage categories applicable at their point of installation.

Only equipment classified for over voltage category III or IV, shall be used for isolation except the plug of a plug and socket-outlet identified in Table A.1 as suitable for isolation.

NOTE 1 Examples of overvoltage categories for devices are given in Section 443 of Part 4-44.

Equipment used for isolation shall comply with 537.2.5 to 537.2.9.

537.2.5 Devices for isolation shall be designed and/or installed so as to prevent unintentional or inadvertent closure (see 462.3).

537.2.6 Provision shall be made for securing off-load isolating devices against inadvertent and unauthorized opening.

This may be achieved by locating the device in a lockable space or enclosure or by padlocking. Alternatively, the off-load device may be interlocked with a load-breaking one.

537.2.7 Means of isolation shall preferably be provided by a multipole switching device which disconnects all poles of the relevant supply but single-pole devices situated adjacent to each other are not excluded, subject to the provisions of 461.2.

537.2.8 Each device used for isolation shall be clearly identified by position or durable marking to indicate the installation or circuit it isolates.

537.2.9 Where a link is inserted in the neutral conductor for isolating purposes, the link shall comply with either or both of the following requirements:

- It cannot be removed without the use of a tool;
- It is accessible to skilled persons only.

537.3 Devices for switching

537.3.1 Functional switching and control devices

Selection and erection of devices for functional switching and control shall be in accordance with the following subclauses.

537.3.1.1 The devices for functional switching and control shall be selected in accordance with Annex A.

537.3.1.2 Functional switching devices shall be suitable for the most onerous duty they are intended to perform. The characteristic of the load to be switched shall be considered (e.g. utilization category).

537.3.1.3 Functional switching devices may control the current without necessarily opening the corresponding poles.

NOTE Semiconductor switching devices and some control auxiliaries are examples of devices capable of interrupting the current in the circuit but not opening the corresponding poles.

537.3.2 Switching-off devices for mechanical maintenance

Selection and erection of devices for Switching-off for mechanical maintenance shall be in accordance with the following subclauses.

537.3.2.1 Devices for switching-off for mechanical maintenance shall be inserted in the supply circuit.

Where switches are provided for this purpose, they shall be capable of cutting off the full load current of the relevant part of the installation. They need not necessarily interrupt the neutral conductor.

Interruption of a control circuit of a drive is permitted only where a condition equivalent to the direct interruption of the main supply is provided by one of the following:

- supplementary safeguards, such as mechanical restrainers, or
- compliance with the requirements of a CENELEC specification for the control devices used.

NOTE Switching-off for mechanical maintenance may be achieved, for example, by means of:

- multipole switches;
- circuit-breakers;
- control and protective switching devices (CPS);
- plugs and sockets.

103 In accordance with the requirement of 464.2, means shall be provided to prevent electrically
104 powered equipment from becoming unintentionally reactivated during mechanical
105 maintenance by:

- 106 – padlocking;
- 107 – warning notices;
- 108 – location within a lockable space or enclosure.

109

110 **537.3.2.2** Devices for switching-off for mechanical maintenance or control switches for such
111 devices shall require manual operation.

112 The open position of the contacts of the device shall be visible or be clearly and reliably
113 indicated.

114 NOTE The indication required by this sub-clause may be achieved by the use of the symbols "O" and "I" to
115 indicate the open and closed positions, respectively.

116 **537.3.2.3** Devices for switching-off for mechanical maintenance shall be placed and marked
117 so as to be easily identifiable for their intended use.

118 **537.3.3 Devices for emergency switching off**

119 Where electrically powered equipment is within the scope of EN 60204-1, the requirements for
120 emergency switching of that standard apply.

121 Selection and erection of devices for emergency switching off shall be in accordance with the
122 following subclauses.

123 **537.3.3.1** The devices for emergency switching shall be capable of breaking the full-load
124 current of the relevant parts of the installation taking into account stalled motor currents
125 where appropriate.

126 **537.3.3.2** Means for emergency switching may consist of:

- 127 – one switching device capable of directly cutting off the appropriate supply, or
- 128 – a combination of equipment activated by a single action for the purpose of cutting off the
129 appropriate supply.

130 Plugs and socket-outlets shall not be provided for use as means for emergency switching.

131 **537.3.3.3** Devices for emergency switching shall ensure the switching of the main circuit.

132 Hand-operated switching devices for direct interruption of the main circuit shall be selected
133 where practicable.

134 Remote control switching of circuit-breakers, contactors, Control and Protective Switching
135 devices (CPS) or RCDs, shall be opened by de-energization of coils, or other equivalent
136 failure-to-safety techniques like pneumatic actuators.

137 **537.3.3.4** The means of operating (handles, push-buttons, etc.) devices for emergency
138 switching shall be clearly identified, preferably by colour. If a colour is used for identification,
139 this shall be RED with a contrasting background (e.g. yellow).

140 NOTE A text on the contrasting background is not useful.

141

142 **537.3.3.5** The means of operating shall be readily accessible at places where a danger might
143 occur and, where appropriate, at any additional remote position from which that danger can
144 be removed.

145 Devices for emergency switching, shall be so placed as to be readily identifiable and
146 convenient for their intended use.

537.3.3.6 The means of operation of a device for emergency switching shall be capable of latching or being restrained in the "off" position, unless both the means of operation for emergency switching and for re-energizing are under the control of the same person.

The release of an emergency switching device operated remotely shall not re-energize the relevant part of the installation.

The operation of the emergency switching device shall have priority on any other function relative to safety and shall not be inhibited by the normal operation of the installation.

537.4 Fireman's switches

National regulations may require the installation of a fireman's switch. Such regulations may also prescribe its location and special installation requirements. In the absence of such regulations, the following requirements apply:

537.4.1 A fireman's switch complying with EN 60669-2-6 shall be provided in the low voltage circuit supplying:

- outdoor lighting installations operating at a voltage exceeding low voltage, and
- indoor discharge lighting installations operating at a voltage exceeding low voltage.

NOTE For the purpose of this clause, an installation in a covered market, arcade or shopping mall is considered to be an outdoor installation. A temporary installation in a permanent building used for exhibitions is considered not to be an outdoor installation.

This requirement does not apply to a portable discharge lighting luminaire or to a sign of rating not exceeding 100 W and fed from an accessible socket-outlet.

537.4.2 Every outdoor installation on each single premise shall wherever practicable be controlled by a single fireman's switch. Similarly, every internal installation in each single premise shall be controlled by a single fireman's switch independent of the switch for any outdoor installation.

537.4.3 Every fireman's switch shall comply with the following requirements, where applicable:

- for an outdoor installation, the switch shall be outside the building and adjacent to the equipment, or alternatively a notice indicating the position of the switch shall be placed adjacent to the equipment and a notice shall be fixed near the switch so as to render it clearly distinguishable;
- for an indoor installation, the switch shall be in the main entrance to the building or in another position to be agreed with the local fire authority;
- the switch shall be placed in a conspicuous position, reasonably accessible to Firemen, at not more than 2,75 m from the ground or the standing beneath the switch;
- where more than one switch is installed on any one building, each switch shall be clearly marked to indicate the installation or part of the installation which it controls.

537.4.4 A fireman's switch shall be easily visible, accessible and marked.

537.4.5 For premises where a statement of rescue services may be requested, a switch off must be provided to ensure the isolation of electrical sources so that fireman can act without risk of electric shocks even with of a degraded electrical installation.

- 187 If a fireman switch is required to allow the intervention of rescue services, it must fulfill the
188 following principles of emergency switching:
- 189 – switching off all the sources of electrical energy;
 - 190 – the switch off of the generator is done in any event upstream the occupants accessible
191 rooms;
 - 192 – controls the switching devices for emergency response services are grouped.
- 193 Signaling the switching effective action must be carried out by devices with free voltage type
194 O/C loop this signaling is provided by the extinction of a white light that shows the actual
195 switch status.




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Annex A (normative)

Table A.1 - Devices for isolation and switching

| Device | Standard | Suitable for | | |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|------------------|----------------------------------|--------------------------------------|
| | | Isolation | Functional switching and control | Emergency switching off ^a |
| Switch disconnectors | EN 60947-3 ^b | Yes | Yes | Yes |
| | EN 62626-1 ^b | Yes | Yes | Yes |
| | EN 60669-2-4 | Yes | Yes | Yes |
| | EN 60669-2-6 | Yes | No | Yes |
| Disconnectors | EN 60669-2-4 ^c | Yes | No | No |
| | EN 60947-3 ^c | Yes | No | No |
| Switches | EN 60669-2-1 | No | Yes | No |
| | EN 60669-2-2 | No | Yes | Yes |
| | EN 60669-2-3 | No | Yes | Yes |
| | EN 60947-3 ^d | No | Yes | Yes |
| | EN 60947-5-1 | No | Yes | Yes |
| Contactors | EN 60947-4-1 | No | Yes | Yes |
| | EN 61095 | No | Yes | No |
| Starters | EN 60947-4-1 | Yes ^c | Yes | Yes |
| | EN 60947-4-2 | No | Yes | No |
| | EN 60947-4-3 | No | Yes | No |
| Circuit-breakers | EN 60898-1 | Yes | No | Yes |
| | EN 60898-2 | Yes | No | Yes |
| | EN 60947-2 | Yes ^c | Yes ^e | Yes |
| Residual current devices | EN 60947-2 | Yes ^c | Yes ^e | Yes |
| | EN 61008-2-1 | Yes | No | Yes |
| | EN 61009-2-1 | Yes | No | Yes |
| | EN 62423 | Yes | No | Yes |
| <p>No Function not provided.</p> <p>a ff accessible.</p> <p>b if marked with the symbol  or a combination with other symbols.</p> <p>c function provided only if the device is suitable for isolation and marked with the symbol for isolation (see EN 60617, Identity number S00288, ).</p> <p>d if marked with the symbol  or a combination with other symbols.</p> <p>e the device is not recommended to be used for frequent functional switching.</p> <p>f plugs and socket-outlets rated at not more than 16 A may be used for functional switching.</p> <p>g device is suitable for on-load isolation.</p> <p>h if indicated by the manufacturer.</p> <p>i link and wiring terminals may provide isolation function according to the manufacturer/designer's documentation.</p> <p>j only a connector with breaking capacity (CBC) is designed to be engaged and disengaged when lived or under load see EN 60984, 3.8.</p> | | | | |