



SLOVENSKI STANDARD
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Nizkonapetostne stikalne in krmilne naprave - 5-1. del: Krmilne naprave in stikalni elementi - Elektromehanske krmilne naprave

Low-voltage switchgear and controlgear - Part 5-1: Control circuit devices and switching elements - Electromechanical control circuit devices

Niederspannungsschaltgeräte - Teil 5-1: Steuergeräte und Schaltelemente – Elektromechanische Steuergeräte

Appareillage à basse tension - Partie 5-1: Appareils et éléments de commutation pour circuits de commande - Appareils électromécaniques pour circuits de commande

Ta slovenski standard je istoveten z: prEN IEC 60947-5-1:2022

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121A/513/CDV

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SECRETARIAT: France	SECRETARY: Mr Michaël LAHEURTE
OF INTEREST TO THE FOLLOWING COMMITTEES: TC 44, TC 94	PROPOSED HORIZONTAL STANDARD: <input type="checkbox"/> Other TC/SCs are requested to indicate their interest, if any, in this CDV to the secretary.
FUNCTIONS CONCERNED: <input checked="" type="checkbox"/> EMC <input type="checkbox"/> ENVIRONMENT <input type="checkbox"/> QUALITY ASSURANCE <input checked="" type="checkbox"/> SAFETY	
<input checked="" type="checkbox"/> 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.	<input type="checkbox"/> NOT SUBMITTED FOR CENELEC PARALLEL VOTING

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TITLE:

Low-voltage switchgear and controlgear - Part 5-1: Control circuit devices and switching elements - Electromechanical control circuit devices

PROPOSED STABILITY DATE: 2026

NOTE FROM TC/SC OFFICERS:

SC121A Officers support circulation of CDV for project IEC 60947-5-1 ED5.

Secretary Note: NC experts are kindly requested to refer their comments to line numbers.

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381 INTERNATIONAL ELECTROTECHNICAL COMMISSION

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LOW-VOLTAGE SWITCHGEAR AND CONTROLGEAR –

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**Part 5-1: Control circuit devices and switching elements –
Electromechanical control circuit devices**

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FOREWORD

390 1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising
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422 International Standard IEC 60947-5-1 has been prepared by subcommittee 121A: Low-voltage
423 switchgear and controlgear, of IEC technical committee 121: Switchgear and controlgear and
424 their assemblies for low voltage.

425 This fifth edition cancels and replaces the fourth edition published in 2016 and its
426 Corrigendum 1:2016. This edition constitutes a technical revision.

427 This edition includes the following significant technical changes with respect to the previous
428 edition:

429 – update of the scope structure and exclusions;

430 – requirements for control circuits;

431 – update of the normal service conditions (e.g. shock and vibration);

432 – update of information and marking requirements including environmental information
433 requirements referencing IEC TS 63058:2021;

434 – update of the constructional requirements and the corresponding tests considering safety
435 aspects (e.g. artificial optical radiation, security aspects, limited energy source, stored
436 charge energy circuit);

- 437 – update of the EMC requirements according to the generic documents;
- 438 – new requirements for reed contact magnetic switches in Annex D
- 439 – requirements for Class II circuit devices achieved by double or reinforced insulation in
440 Annex F;
- 441 – update of pull-out tests in Annex G;
- 442 – information requirements for audible signalling device in Annex J;
- 443 – insertion of new Annex O (Additional requirements for control circuit devices incorporating
444 a built-in communication interface complying with IEC 61131-9:2022).
- 445 The text of this standard is based on the following documents:

FDIS	Report on voting
121A/XXX/FDIS	121A/XXX/RVD

446
447 Full information on the voting for the approval of this standard can be found in the report on
448 voting indicated in the above table.

449 This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

450 This International Standard should be used in conjunction with IEC 60947-1.

451 The provisions of the general rules, IEC 60947-1, are applicable to this standard, where
452 specifically called for. General rules, clauses and subclauses thus applicable, as well as tables,
453 figures and annexes are identified by a reference to IEC 60947-1, for example 1.2.3, Table 4
454 or Annex A of IEC 60947-1:2020.

455 The following differing practices of a less permanent nature exist in the countries indicated
456 below.

- 457 – 8.2.4.1: Making and breaking capacities (United States of America and Canada)
- 458 – 9.3.3.5.2: Test circuits and connections (United States of America and Canada)

459 A list of all the parts in the IEC 60947 series, under the general title *Low-voltage switchgear
460 and controlgear*, can be found on the IEC website.

461 The committee has decided that the contents of this publication will remain unchanged until the
462 stability date indicated on the IEC website under "<http://webstore.iec.ch>" in the data related to
463 the specific publication. At this date, the publication will be

- 464 • reconfirmed,
- 465 • withdrawn,
- 466 • replaced by a revised edition, or
- 467 • amended.

468

469 LOW-VOLTAGE SWITCHGEAR AND CONTROLGEAR –

470 471 Part 5-1: Control circuit devices and switching elements – 472 Electromechanical control circuit devices 473

474 1 Scope

475 This part of IEC 60947 applies to control circuit devices and switching elements intended for
476 controlling, signalling, interlocking, etc., of switchgear and controlgear.

477 It applies to control circuit devices having a rated voltage not exceeding 1 000 V AC (at a
478 frequency not exceeding 1 000 Hz) or 600 V DC.

479 This document applies to specific types of control circuit devices as contained in the following
480 non exhaustive list:

- 481 – manually operated control switches;
- 482 – electromagnetically operated control switches, either time-delayed or instantaneous;
- 483 – contactor relays;
- 484 – pilot switches;
- 485 – pressure switches;
- 486 – temperature sensitive switches (thermostats);
- 487 – programmers;
- 488 – position switches;
- 489 – control switches operated by part of a machine or mechanism;
- 490 – associated control circuit equipment, for example indicator lights;
- 491 – control circuit devices incorporating semiconductor switching elements;
- 492 – control circuit devices incorporating a built-in single drop digital communication interface.

493 NOTE 1 Control circuit devices and switching elements are referred to as "equipment" or "device" equally in this
494 document.

495 It also applies to specific types of control circuit switching elements associated with other
496 devices (whose main circuits are covered by other standards) as contained in the following non
497 exhaustive list:

- 498 – auxiliary contacts of a switching device (e.g. contactor, circuit breaker) which are not
499 dedicated exclusively for use with the coil of that device;
- 500 – interlocking contacts of enclosure doors;
- 501 – control circuit contacts of rotary switches;
- 502 – control circuit contacts of overload relays.

503 This document does not apply to:

- 504 – relays covered in IEC 60255 or in IEC 61810 series;
- 505 – automatic electrical control devices for household and similar purposes;
- 506 – the use of control circuit devices and switching elements with additional measure within
507 explosive atmospheres. These are given in IEC 60079 series;

508 This document does not address specific colour requirements or actuating force values.

509 NOTE 2 Colour requirements can be found in IEC 60073 and also in CIE S004/E-2001.

510 The object of this document is to state:

- 511 – definitions;

- 512 – classification;
- 513 – characteristics;
- 514 – product information;
- 515 – normal service, mounting and transport conditions;
- 516 – constructional and performance requirements, including electromagnetic compatibility
- 517 (EMC) and all related product safety measures;
- 518 – tests to verify the requirements and the rated characteristics.

519 **2 Normative references**

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

- 524 IEC 60068-2-6:2007, *Environmental testing – Part 2-6: Tests – Test Fc: Vibration (sinusoidal)*
- 525 IEC 60068-2-14:2009, *Environmental testing – Part 2-14: Tests – Test N: Change of*
 526 *temperature*
- 527 IEC 60068-2-27:2008, *Environmental testing – Part 2-27: Tests – Test Ea and guidance: Shock*
- 528 IEC 60068-2-30:2005, *Environmental testing – Part 2-30: Tests – Test Db: Damp heat, cyclic*
 529 *(12 h + 12 h cycle)*
- 530 IEC 60068-2-78:2012, *Environmental testing – Part 2-78: Tests – Test Cab: Damp heat, steady*
 531 *state*
- 532 IEC 60695-2-10:2013, *Fire hazard testing – Part 2-10: Glowing/hot-wire based test methods –*
 533 *Glow-wire apparatus and common test procedure*
- 534 IEC 60695-2-11:2014, *Fire hazard testing – Part 2-11: Glowing/hot-wire based test methods –*
 535 *Glow-wire flammability test method for end-products (GWEPT)*
- 536 IEC 60695-2-12:2010, *Fire hazard testing – Part 2-12: Glowing/hot-wire based test methods –*
 537 *Glow-wire flammability index (GWFI) test method for materials*
 538 IEC 60695-2-12:2010/AMD1:2014
- 539 IEC 60730-1, *Automatic electrical controls – Part 1: General requirements*
- 540 IEC 60947-1:2020, *Low-voltage switchgear and controlgear – Part 1: General rules*
- 541 IEC 60947-4-1:2018, *Low-voltage switchgear and controlgear – Part 4-1: Contactors and motor-*
 542 *starters – Electromechanical contactors and motor-starters*
- 543 IEC 60947-5-2:2019, *Low-voltage switchgear and controlgear – Part 5-2: Control circuit devices*
 544 *and switching elements - Proximity switches*
- 545 IEC 60947-5-3:2013, *Low-voltage switchgear and controlgear – Part 5-3: Control circuit devices*
 546 *and switching elements - Requirements for proximity devices with defined behaviour under fault*
 547 *conditions (PDDB)*
- 548 IEC 60947-5-5:1997, *Low-voltage switchgear and controlgear – Part 5-5: Control circuit devices*
 549 *and switching elements – Electrical emergency stop device with mechanical latching function*
 550 IEC 60947-5-5:1997/AMD1:2005
 551 IEC 60947-5-5:1997/AMD2:2016