ICS 29.120.40, 29.130.20 SLOVENSKÁ TECHNICKÁ NORMA Máj 2023

STN	**Spínacie a riadiace zariadenia nízkeho napätia Časť 6-2: Spínače s viacerými funkciami Riadiace a ochranné spínacie prístroje (alebo zariadenia) (CPS)**	**STN EN IEC 60947-6-2** 35 4101

Low-voltage switchgear and controlgear - Part 6-2: Multiple function equipment - Control and protective switching devices (or equipment) (CPS)

Táto norma obsahuje anglickú verziu európskej normy.
This standard includes the English version of the European Standard.

Táto norma bola oznámená vo Vestníku ÚNMS SR č. 04/23

Obsahuje: EN IEC 60947-6-2:2023, IEC 60947-6-2:2020, IEC 60947-6-2:2020/COR1:2021

Oznámením tejto normy sa od 03.03.2026 ruší
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EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN IEC 60947-6-2

March 2023

ICS 29.120.40; 29.130.20

Supersedes EN 60947-6-2:2003;
EN 60947-6-2:2003/A1:2007

English Version

Low-voltage switchgear and controlgear - Part 6-2: Multiple function equipment - Control and protective switching devices (or equipment) (CPS) (IEC 60947-6-2:2020 + COR1:2021)

Appareillage à basse tension - Partie 6-2: Matériels à fonctions multiples - Appareils (ou matériel) de connexion de commande de protection (ACP) (IEC 60947-6-2:2020 + COR1:2021)

Niederspannungsschaltgeräte - Teil 6-2: Mehrfunktions-Schaltgeräte - Steuer- und Schutz-Schaltgeräte (CPS) (IEC 60947-6-2:2020 + COR1:2021)

This European Standard was approved by CENELEC on 2021-01-19. 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.

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

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

European foreword

The text of document 121A/384/FDIS, future edition 3 of IEC 60947-6-2, prepared by SC 121A "Low-voltage switchgear and controlgear" of IEC/TC 121 "Switchgear and controlgear and their assemblies for low voltage" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN IEC 60947-6-2:2023.

The following dates are fixed:

- latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2023-12-03
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2026-03-03

This document supersedes EN 60947-6-2:2003 and all of its amendments and corrigenda (if any).

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

This document has been prepared under a Standardization Request given to CENELEC by the European Commission and the European Free Trade Association.

Any feedback and questions on this document should be directed to the users' national committee. A complete listing of these bodies can be found on the CENELEC website.

Endorsement notice

The text of the International Standard IEC 60947-6-2:2020 was approved by CENELEC as a European Standard without any modification.

In the official version, for Bibliography, the following notes have to be added for the standard indicated:

IEC 60034-12:2016	NOTE Approved as EN 60034-12:2017 (not modified)
IEC 60034-30-1	NOTE Approved as EN 60034-30-1
IEC 60068-2-2:2007	NOTE Approved as EN 60068-2-2:2007 (not modified)
IEC 60076-1:2011	NOTE Approved as EN 60076-1:2011 (not modified)
IEC 60079 (series)	NOTE Approved as EN IEC 60079 (series)
IEC 60269-1:2006	NOTE Approved as EN 60269-1:2007 (not modified)
IEC 60269-2:2013	NOTE Approved as HD 60269-2:2013
IEC 60381-1:1982	NOTE Approved as HD 452.1 S1:1984 (not modified)
IEC 60664-1:2020	NOTE Approved as EN IEC 60664-1:2020 (not modified)
IEC 60947-4-1:2018	NOTE Approved as EN IEC 60947-4-1:2019 (not modified)
IEC 60990:2016	NOTE Approved as EN 60990:2016 (not modified)

IEC 61000-6-5	NOTE Approved as EN 61000-6-5
IEC 61032	NOTE Approved as EN 61032
IEC 61439 (series)	NOTE Approved as EN IEC 61439 (series)
IEC 61649:2008	NOTE Approved as EN 61649:2008 (not modified)
IEC 62061	NOTE Approved as EN IEC 62061
IEC 62477-1:2012	NOTE Approved as EN 62477-1:2012 (not modified) +A11:2014
IEC 62683-1	NOTE Approved as EN 62683-1
IEC/TR 63201	NOTE Approved as CLC IEC/TR 63201

Annex ZA
(normative)

Normative references to international publications with their corresponding European publications

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

NOTE 1 Where an International Publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

NOTE 2 Up-to-date information on the latest versions of the European Standards listed in this annex is available here: www.cenelec.eu.

Publication	Year	Title	EN/HD	Year
IEC 60034-1	2017	Rotating electrical machines - Part 1: Rating and performance	-	-
IEC 60085	2007	Electrical insulation - Thermal evaluation and designation	EN 60085	2008
IEC 60417	-	Graphical symbols for use on equipment	-	-
IEC 60617	-	Graphical symbols for diagrams	-	-
IEC 60715	2017	Dimensions of low-voltage switchgear and controlgear - Standardized mounting on rails for mechanical support of switchgear, controlgear and accessories	EN 60715	2017
IEC 60730-1	-	Automatic electrical controls - Part 1: General requirements	EN 60730-1	-
IEC 60947-1	2020	Low-voltage switchgear and controlgear - Part 1: General rules	EN IEC 60947-1	2021
IEC 60947-2	2016	Low-voltage switchgear and controlgear - Part 2: Circuit-breakers	EN 60947-2	2017
+ A1	2019		+ A1	2020
IEC 60947-5-1	2016	Low-voltage switchgear and controlgear - Part 5-1: Control circuit devices and switching elements - Electromechanical control circuit devices	EN 60947-5-1	2017
IEC 61000-6-2	-	Electromagnetic compatibility (EMC) - Part 6-2: Generic standards - Immunity standard for industrial environments	EN IEC 61000-6-2	-
IEC 61051-2	-	Varistors for use in electronic equipment - Part 2: Sectional specification for surge suppression varistors	EN IEC 61051-2	-
CISPR 11	2015	Industrial, scientific and medical equipment - Radio-frequency disturbance characteristics - Limits and methods of measurement	EN 55011	2016

+ A1	2016		+ A1	2017
-	-		+ A11	2020
+ A2	2019		+ A2	2021
CISPR 32	-	Electromagnetic compatibility of multimedia equipment - Emission requirements	EN 55032	-
ISO 3864-2	-	Graphical symbols - Safety colours and safety signs - Part 2: Design principles for product safety labels	-	-

IEC 60947-6-2

Edition 3.0 2020-12

INTERNATIONAL STANDARD

NORME INTERNATIONALE

Low-voltage switchgear and controlgear – Part 6-2: Multiple function equipment – Control and protective switching devices (or equipment) (CPS)

Appareillage à basse tension – Partie 6-2: Matériels à fonctions multiples – Appareils (ou matériel) de connexion de commande de protection (ACP)

IEC 60947-6-2:2020-12(en-fr)

IEC 60947-6-2

Edition 3.0 2020-12

INTERNATIONAL STANDARD

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Low-voltage switchgear and controlgear – Part 6-2: Multiple function equipment – Control and protective switching devices (or equipment) (CPS)

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INTERNATIONAL
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INTERNATIONALE

ICS 29.120.40; 29.130.20 ISBN 978-2-8322-9161-0

CONTENTS

INTERNATIONAL ELECTROTECHNICAL COMMISSION

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LOW-VOLTAGE SWITCHGEAR AND CONTROLGEAR –

Part 6-2: Multiple function equipment – Control and protective switching devices (or equipment) (CPS)

FOREWORD

1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as “IEC Publication(s)”). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
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8) Attention is drawn to the Normative references cited in this publication. Use of the referenced publications is indispensable for the correct application of this publication.
9) Attention is drawn to the possibility that some of the elements of this IEC Publication may be the subject of patent rights. IEC shall not be held responsible for identifying any or all such patent rights.

International Standard IEC 60947-6-2 has been prepared by subcommittee 121A: Low-voltage switchgear and controlgear, of IEC technical committee 121: Switchgear and controlgear and their assemblies for low-voltage.

This third edition cancels and replaces the second edition published in 2002 and its Amendment 1:2007. This edition constitutes a technical revision.

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

- editorial changes according to ISO/IEC directives Part 2,
- alignments with IEC 60947-1:2020:
  - markings ("s", "sol", "r" or "f");
  - constructional requirements including material requirements;
  - requirements for screwless terminals;

  - measurement method of the pole impedance;
  - EMC requirement and testing;
  - procedure to determine data for electromechanical CPS's used in functional safety applications;
- harmonisation with IEC 60947-2:2016:
  - operation tests of under-voltage relays and shunt releases;
  - CPS for IT systems (Annex G);
  - coordination with other short-circuit protective devices;
- alignments with IEC 60947-4-1:2018:
  - test at the rated conditional short-circuit current I_q of protected switching devices;
  - short-circuit tests harmonisation with North America;
  - reliability data for functional safety applications (new Annex K);
  - safety aspects related to electronic circuits and protective impedance (new Annex N);
  - introduction of provisions covering the impact of higher locked rotor current to achieve high efficiency class;
  - mention of dedicated wiring accessories;
  - definitions and measurement method of the power consumption of the control circuit during holding and pick-up operations;
  - load monitoring indicators (new Annex M).

The text of this International Standard is based on the following documents:

FDIS	Report on voting
121A/384/FDIS	121A/392/RVD

Full information on the voting for the approval of this International Standard can be found in the report on voting indicated in the above table.

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

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

This document shall be read in conjunction with IEC 60947-1, *Low voltage switchgear and controlgear – Part 1: General rules*.

The provisions of the general rules are applicable to this part of IEC 60947-6, where specifically called for. General rules clauses and subclauses thus applicable as well as tables, figures and annexes are identified by reference to IEC 60947-1, for example, 1.2.3, Table 4, or Annex A of IEC 60947-1:2020.

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

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

IMPORTANT – The 'colour inside' logo on the cover page of this publication indicates that it contains colours which are considered to be useful for the correct understanding of its contents. Users should therefore print this document using a colour printer.

LOW-VOLTAGE SWITCHGEAR AND CONTROLGEAR –

Part 6-2: Multiple function equipment – Control and protective switching devices (or equipment) (CPS)

1 Scope

This document applies to control and protective switching devices (or equipment) (CPS), the main contacts of which are intended to be connected to circuits of rated voltage not exceeding 1 000 V AC or 1 500 V DC.

It covers control and protective switching device (CPS):

– which provides protective and control functions for circuits and motors;
– where its control function is operated exclusively otherwise than by hand;
– which provides continuity of service after over-current conditions; and
– which can have additional functions, such as isolation or communication.

This document does not apply to:

– auxiliary contacts, covered by IEC 60947-5-1;
– CPS used downstream to frequency drive[1];

NOTE Additional requirements for CPS used downstream to frequency drive are under consideration for the next maintenance cycle.

– the use of the product with additional measure within explosive atmospheres, covered by IEC 60079 (all parts);
– embedded software design rules, covered by IEC TR 63201;
– cyber security aspects, covered by IEC TS 63208.

The object of this document is to state:

– the characteristics of CPS's;
– the conditions with which CPS's are complying with reference to their operation and behaviour, their dielectric properties, the degree of protection provided by their enclosure where applicable, its construction including safety measures against electric shock, fire hazard and mechanical hazard;
– the tests intended to verify that these conditions have been met, and the methods to be adopted for these tests;
– the information to be marked on or given with the CPS's.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

[1] For this subject, the manufacturer is responsible to take additional safety measures.

IEC 60034-1:2017, *Rotating electrical machines – Part 1: Rating and performance*

IEC 60085:2007, *Electrical insulation – Thermal evaluation and designation*

IEC 60417, *Graphical symbols for use on equipment* (available at http://www.graphical-symbols.info/equipment)

IEC 60617, *Graphical symbols for diagrams* (available at http://std.iec.ch/iec60617)

IEC 60715:2017, *Dimensions of low-voltage switchgear and controlgear – Standardized mounting on rails for mechanical support of switchgear, controlgear and accessories*

IEC 60730-1, *Automatic electrical controls – Part 1: General requirements*

IEC 60947-1:2020, *Low-voltage switchgear and controlgear – Part 1: General rules*

IEC 60947-2:2016, *Low-voltage switchgear and controlgear – Part 2: Circuit-breakers*
IEC 60947-2:2016/AMD1:2019

IEC 60947-5-1:2016, *Low-voltage switchgear and controlgear – Part 5-1: Control circuit devices and switching elements – Electromechanical control circuit devices*

IEC 61000-6-2, *Electromagnetic compatibility (EMC) – Part 6-2: Generic standards – Immunity standard for industrial environments*

IEC 61051-2, *Varistors for use in electronic equipment – Part 2: Sectional specification for surge suppression varistors*

CISPR 11:2015, *Industrial, scientific and medical equipment – Radio-frequency disturbance characteristics – Limits and methods of measurement*
CISPR 11:2015/AMD1:2016
CISPR 11:2015/AMD2:2019

CISPR 32, *Electromagnetic compatibility of multimedia equipment – Emission requirements*

ISO 3864-2, *Graphical symbols – Safety colours and safety signs – Part 2: Design principles for product safety labels*