SLOVENSKI STANDARD
SIST EN IEC 60947-5-2:2020/oprAA:2021

01-februar-2021

Nizkonapetostne stikalne in krmilne naprave - 5-2. del: Krmilne naprave in stikalni elementi - Približevalna stikala - Dopolnilo AA

Low-voltage switchgear and controlgear - Part 5-2: Control circuit devices and switching elements - Proximity switches

Niederspannungsschaltgeräte - Teil 5-2: Steuergeräte und Schaltelemente - Näherungsschalter

Appareillage à basse tension - Partie 5-2: Appareils et éléments de commutation pour circuits de commande - Détecteurs de proximité

Ta slovenski standard je istoveten z: **EN IEC 60947-5-2:2020/prAA**

ICS:

29.130.20	Nizkonapetostne stikalne in krmilne naprave	Low voltage switchgear and controlgear

SIST EN IEC 60947-5-2:2020/oprAA:2021 **en**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

DRAFT
EN IEC 60947-5-2:2020
prAA

December 2020

ICS 29.120.40; 29.130.20

English Version

Low-voltage switchgear and controlgear - Part 5-2: Control circuit devices and switching elements - Proximity switches

Appareillage à basse tension - Partie 5-2: Appareils et éléments de commutation pour circuits de commande - Détecteurs de proximité

Niederspannungsschaltgeräte - Teil 5-2: Steuergeräte und Schaltelemente - Näherungsschalter

This draft amendment prAA, if approved, will modify the European Standard EN IEC 60947-5-2:2020; it is submitted to CENELEC members for enquiry.
Deadline for CENELEC: 2021-03-05.

It has been drawn up by CLC/TC 121A.

If this draft becomes an amendment, CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this amendment the status of a national standard without any alteration.

This draft amendment was established by CENELEC in three official versions (English, French, German).
A version in any other language made by translation under the responsibility of a CENELEC member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

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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.

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CENELEC

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

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Project: 69836 Ref. No. EN IEC 60947-5-2:2020/prAA E

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European foreword

This document (EN IEC 60947-5-2:2020/prAA:2020) has been prepared by CLC/TC121A “Low-voltage switchgear and controlgear”.

This document is currently submitted to the Formal Vote.

The following dates are proposed:

• latest date by which the existence of this document has to be announced at national level	(doa)	dor + 3 months
• latest date by which this document has to be implemented at national level by publication of an identical national standard or by endorsement	(dop)	dor + 6 months
• latest date by which the national standards conflicting with this document have to be withdrawn	(dow)	dor + 27 months

This document will amend EN IEC 60947-5-2:2020.

This document has been prepared under mandate(s) M/536 and M/511 given to CENELEC by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive 2014/53/EU.

For the relationship with EU Directive(s) see informative Annex ZZC, which is an integral part of this document.

This amendment is expected to be read in conjunction with EN IEC 60947-5-2:2020. It specifies additional safety and EMC requirements for proximity switches that incorporate radio functionality in a fixed and permanent manner.

1 Modification to Clause 1, “Scope”

Add the following new paragraph and note at the end of the existing text:

“Annex ZC of this document defines requirements in respect of safety under article 3.1(a) and Electromagnetic Compatibility (EMC) under article 3.1(b) of Directive 2014/53/EU for proximity switches that incorporate one or more radio technologies as set out in Clause ZC.2 in a fixed and permanent manner.

NOTE Requirements applicable to the efficient use of radio spectrum are not included in this document. These requirements can be found in the applicable ETSI product standard(s) for the effective use of the radio spectrum under article 3.2 of Directive 2014/53/EU.”

2 Additions to Clause 2, "Normative references"

Add the following normative references:

“

EN 55032:2015, *Electromagnetic compatibility of multimedia equipment - Emission Requirements*

EN IEC 61000-6-4:2019, *Electromagnetic compatibility (EMC) - Part 6-4: Generic standards - Emission standard for industrial environments*

EN IEC 62311:2020, *Assessment of electronic and electrical equipment related to human exposure restrictions for electromagnetic fields (0 Hz to 300 GHz)*

EN 62479:2010, *Assessment of the compliance of low power electronic and electrical equipment with the basic restrictions related to human exposure to electromagnetic fields (10 MHz to 300 GHz)*

ETSI EN 301-489-3, V2.1.1, *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 246 GHz; Harmonised Standard covering the essential requirements of article 3.1(b) of Directive 2014/53/EU*

ETSI EN 301-489-17, V3.2.3,[1] *ElectroMagnetic Compatibility (EMC) standard for radio equipment and services; Part 17: Specific conditions for Broadband Data Transmission Systems; Harmonised Standard for ElectroMagnetic Compatibility*

ETSI EN 301-489-19, V2.1.1, *ElectroMagnetic Compatibility (EMC) standard for radio equipment and services; Part 19: Specific conditions for Receive Only Mobile Earth Stations (ROMES) operating in the 1,5 GHz band providing data communications and GNSS receivers operating in the RNSS band (ROGNSS) providing positioning, navigation, and timing data; Harmonised Standard covering the essential requirements of article 3.1(b) of Directive 2014/53/EU*

ETSI EN 301-489-33, V2.2.1, *ElectroMagnetic Compatibility (EMC) standard for radio equipment and services; Part 33: Specific conditions for Ultra-WideBand (UWB) devices; Harmonised Standard covering the essential requirements of article 3.1(b) of Directive 2014/53/EU*"

[1] Final Draft (under approval at the time of vote).

3 Additions to Clause 3, "Terms and Definitions"

Add the following terms and definitions to 3.1:

"

Z.3.1.1
antenna port
port for connection of an antenna used for intentional transmission and/or reception of radiated RF energy

[SOURCE: ETSI EN 303 446-2 (V1.2.1), modified – Note deleted.]

Z.3.1.2
exclusion band
frequency range where during immunity test, the radio functionality is not required to meet the performance criteria defined for the specific test and where the emissions are not assessed

[SOURCE: ETSI EN 303 446-2 (V1.2.1)]

Z.3.1.3
function
operation carried out by an equipment

Note 1 to entry: Functions are related to basic technologies incorporated in the equipment such as radio reception, radio transmission, emitting light, conversion of physical dimensions to electrical signals.

[SOURCE: ETSI EN 303 446-2 (V1.2.1)]

Z.3.1.4
port
particular interface, of the specified equipment, with the electromagnetic environment

Note 1 to entry: For example, any connection point on an equipment intended for connection of cables to or from that equipment is considered as a port (see Figure ZC.1).

Note 2 to entry: In the case of integral antenna equipment the antenna port is the same as the enclosure port.

[SOURCE: ETSI EN 303 446-2 (V1.2.1), modified – Figure 1 deleted from definition and inserted as Figure ZC.1, Note 1 to entry updated.]

Z.3.1.5
radio equipment
electrical or electronic product, which intentionally emits and/or receives radio waves for the purpose of radio communication and/or radio determination, or an electrical or electronic product which must be completed with an accessory, such as antenna, so as to intentionally emit and/or receive radio waves for the purpose of radio communication and/or radio determination

[SOURCE: Radio Equipment Directive 2014/53/EU, Article 2.1(1)]

Z.3.1.6
wired network port
point of connection for data and signaling transfers intended to interconnect widely dispersed systems by direct connection to a single-user or multi-user communication network (for example LAN and similar networks)

Note 1 to entry: These ports can support screened or unscreened cables and can also carry AC or DC power where this is an integral part of the telecommunication specification."

Add the following subclause Z.3.5, "Abbreviations":

"**Z.3.5 Abbreviations**

For the purpose of this annex, the abbreviations defined elsewhere in this standard and the following apply:

EMF	electromagnetic fields
EUT	equipment under test
GNSS	global navigation satellite system
LAN	local area network
RF	radio frequency
RNSS	radio-navigation satellite service
ROGNSS	receive only global navigation satellite system
ROMES	receive only mobile earth station
UWB	ultra wide band

"

4 Addition of Annex ZC, "Proximity switches with integrated radio functionality"

Insert the following new Annex ZC:

"

Annex ZC
(normative)

Proximity switches with integrated radio functionality

ZC.1 General

The requirements of the main body of this standard apply unless otherwise stated in this Annex.

This Annex defines additional requirements in respect to safety under article 3.1(a) and Electromagnetic Compatibility (EMC) under article 3.1(b) of Directive 2014/53/EU for proximity switches that incorporate one or more radio technologies as set out in Clause ZC.2 in a fixed and permanent manner.

ZC.2 Incorporated radio technologies

This annex is applicable if a proximity switch incorporates one or more of the radio technologies set out in Table ZC.1.

Table ZC.1 — Incorporated radio technologies

Incorporated radio technology	Radio EMC standard	Exclusion band definition
Short range [a]	ETSI EN 301 489–3 (V2.1.1)	Subclause 4.6
Broadband data transmission [b]	ETSI EN 301 489–17 (V3.2.3)	Subclause 4.3
ROMES and ROGNSS [c]	ETSI EN 301 489–19 (V2.1.1)	Subclause 4.3
UWB [d]	ETSI EN 301 489–33 (V2.2.1)	Subclause 4.3
NOTE The subclause number relates to that subclause in the radio EMC standard.		

Incorporated radio technology	Radio EMC standard	Exclusion band definition
a Short range devices as defined in the scope of ETSI EN 301 489–3 (V2.1.1). b Broadband Data Transmission Systems as defined in the scope of ETSI EN 301 489–17 (V3.2.3) and further pointed out in Annex B of that standard. c ROMES operating in the 1,5 GHz band providing data communications and GNSS receivers operating in the RNSS band (ROGNSS) providing position, navigation and timing data as defined in the scope of ETSI EN 301 489–19 (V2.1.1). d Ultra-Wideband devices as defined in the scope of ETSI EN 301 489–33 (V2.2.1).		

ZC.3 Technical requirements

ZC.3.1 General

ZC.3.2 sets out requirements related to the risk of human exposure to electromagnetic fields.

The requirements specified in 8.2.6 shall be replaced by those defined in ZC.3.3.

NOTE The term “performance requirements” which is used throughout the EN 60947 series of standards is equivalent to the term “technical requirements”.

ZC.3.2 Basic restrictions related to human exposure of electromagnetic fields

The radio function shall first be assessed according the requirements set out in EN 62479:2010 by applying either route B or route C as specified in EN 62479:2010, 4.1. The radio function is deemed to comply with the requirements if the power level (P_{max}) of the ICNIRP Guideline, as specified in EN 62479:2010, Table A.1 (ICNIRP, first 4 rows), is met.

If the proximity switch is exclusively intended to be used in an industrial environment, the limit P_{max} is 200 mW. If P_{max} is between 100 mW and 200 mW then the manufacturer’s documentation shall state that this product shall not be used near to head and trunk.

If the intended use of the proximity switch includes exposure to the general public, the limit P_{max} is 40 mW. If P_{max} is between 20 mW and 40 mW then the manufacturer’s documentation shall state that this product shall not be used near to head and trunk.

If the low-power exclusion level P_{max} is not met when applying route B or route C, the radio function shall be further assessed according to EN IEC 62311:2020, Clause 5.

Information on the intended environment (industrial or general public) and any restrictions shall be provided in addition to the requirements of subclause 6.1.

NOTE A proximity switch without radio functionality is inherently compliant with the exposure limits related to EMF and therefore falls into route A of EN 62479:2010.

ZC.3.3 Electromagnetic compatibility

ZC.3.3.1 Introduction

The EUT in configuration(s) typical for its intended operating conditions shall be assessed according to the requirements defined in subclauses ZC.3.3.4 and ZC.3.3.5. The EUT shall be configured so as to:

— maximize the emissions of the EUT;

— ensure the EUT is most susceptible to the effects of external electromagnetic interference.