



CSA C22.2 No. 60947-5-2:22  
(IEC 60947-5-2:2007+A1:2012, MOD)  
National Standard of Canada



CSA C22.2 No. 60947-5-2:22

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

(IEC 60947-5-2:2007+A1:2012, MOD)



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***Low-voltage switchgear and controlgear — Part 5-2:  
Control circuit devices and switching elements —***

***Proximity switches***

***(IEC 60947-5-2:2007+A1:2012, MOD)***

**Note:** For brevity, this Standard will be referred to as “CSA C22.2 No. 60947-5-2” throughout.

MARCH 31, 2022

This national standard is based on publication IEC 60947-5-2, edition 3.0 (edition 3:2007 consolidated with Amendment 1:2012).

*Prepared by  
International Electrotechnical Commission*



*Reviewed by*



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## CONTENTS

<b>Preface</b> .....	<b>7</b>
<b>NATIONAL DIFFERENCES</b> .....	<b>9</b>
<b>FOREWORD</b> .....	<b>11</b>
1 General .....	13
1DV Modification of Clause 1 by adding the following: .....	13
1.1 Scope and object .....	13
1.1DV Modification of 1.1 by adding the following: .....	14
1.2 Normative references .....	14
1.2DV Modification of 1.2 by adding the following: .....	15
2 Definitions .....	15
2.1 Basic definitions .....	17
2.2 Parts of a proximity switch .....	19
2.3 Operation of a proximity switch .....	20
2.4 Switching element characteristics .....	23
3 Classification .....	27
3.1 Classification according to sensing means .....	27
3.2 Classification according to the mechanical installation .....	27
3.3 Classification according to the construction form and size .....	27
3.4 Classification according to switching element function .....	27
3.5 Classification according to type of output .....	27
3.6 Classification according to method of connection .....	27
4 Characteristics .....	27
4.1 Summary of characteristics .....	27
4.2 Operating conditions .....	28
4.3 Rated and limiting values for the proximity switch and switching element(s) .....	31
4.4 Utilization categories for the switching element .....	33
4.4DV Modification of 4.4 by replacing it with the following: .....	33
5 Product information .....	33
5.1 Nature of information – Identification .....	33
5.1DV Modification of 5.1 by adding the following: .....	34
5.2 Marking .....	35
5.3 Instructions for installation, operation and maintenance .....	36
6 Normal service, mounting and transport conditions .....	36
6.1 Normal service conditions .....	36
6.2 Conditions during transport and storage .....	37
6.3 Mounting .....	37
7 Constructional and performance requirements .....	37
7.1 Constructional requirements .....	37
7.2 Performance requirements .....	42
7.3 Physical dimensions .....	53
7.4 Shock and vibration .....	53
8 Tests .....	54
8.1 Kinds of tests .....	54
8.2 Compliance with constructional requirements .....	55
8.3 Performances .....	55
8.4 Testing of operating distances .....	67
8.5 Testing for the frequency of operating cycles .....	71
8.6 Verification of the electromagnetic compatibility .....	76
8.7 Test results and test report .....	78

## Annex A (informative) Typical dimensions and operating distances of proximity switches

A.1	(IA) Dimensions .....	79
A.2	(IA) Rated operating distances .....	80
A.3	(IA) Installation (mounting).....	80
A.4	(IA) Frequency of operating cycles ( $f$ ) in operating cycles per second – Minimum requirements .....	81
A.1	(IB) Dimensions .....	82
A.2	(IB) Rated operating distances .....	82
A.3	(IB) Installation (mounting).....	83
A.4	(IB) Frequency of operating cycles ( $f$ ) in operating cycles per second – Minimum requirements .....	83
A.1	(IC) Dimensions .....	84
A.2	(IC) Rated operating distance .....	87
A.3	(IC) Installation (mounting).....	87
A.4	(IC) Frequency of operating cycles ( $f$ ) in operating cycles per second – Minimum requirements .....	89
A.1	(ID) Dimensions .....	90
A.2	(ID) Rated operating distance .....	90
A.3	(ID) Installation (mounting).....	91
A.4	(ID) Frequency of operating cycles ( $f$ ) in operating cycles per second – Minimum requirements .....	91
A.1	(CA) Dimensions .....	92
A.2	(CA) Rated operating distance ( $s_n$ ) .....	93
A.3	(CA) Installation (mounting) .....	93
A.4	(CA) Frequency of operating cycles ( $f$ ).....	93
A.1	(CC) Dimensions .....	94
A.2	(CC) Rated operating distances ( $s_n$ ) .....	95
A.3	(CC) Installation (mounting) .....	96
A.4	(CC) Frequency of operating cycles ( $f$ ).....	96
A.1	(CD) Dimensions .....	97
A.2	(CD) Rated operating distance ( $s_n$ ) .....	97
A.3	(CD) Installation (mounting) .....	97
A.4	(CD) Frequency of operating cycles ( $f$ ).....	98
A.1	(UA) Dimensions.....	99
A.2	(UA) Sensing range.....	100
A.3	(UA) Installation (mounting) .....	100
A.4	(UA) Frequency of operating cycles ( $f$ ).....	100
A.1	(UC) Dimensions .....	101
A.2	(UC) Sensing range .....	101
A.3	(UC) Installation (mounting) .....	102
A.4	(UC) Frequency of operating cycles ( $f$ ).....	102
A.1	(UD) Dimensions .....	103
A.2	(UD) Sensing range .....	103
A.3	(UD) Installation (mounting) .....	104
A.4	(UD) Frequency of operating cycles ( $f$ ).....	104

## Annex B (normative) Class II proximity switches insulated by encapsulation – Requirements and tests

B.1	General .....	105
B.2	Definitions .....	105
B.5	Marking .....	105
B.7	Constructional and functional requirements.....	106
	B.7.1 Choice of compound.....	106
	B.7.2 Adhesion of the compound.....	106

B.7.3 Dielectric properties .....	106
B.8 Tests .....	107
B.8.1 Kind of tests .....	107

### **Annex C (normative) Additional requirements for proximity switches with integrally connected cables**

C.1 General .....	109
C.2 Definitions .....	109
C.7 Constructional and performance requirements .....	109
C.7.1 Constructional requirements .....	109
C.7.2 Performance requirements .....	111
C.8 Tests .....	111
C.8.1 Type tests .....	111
C.8.2 Results to be obtained .....	114
C.8.2DV Modification of C.8.2 by adding the following: .....	114

### **Annex D (normative) Integral connectors for plug-in proximity switches**

### **Annex E (normative) Additional requirements for proximity switches suitable for use in strong magnetic fields**

E.1 General .....	120
E.1.2 Scope and object .....	120
E.2 Definitions .....	120
E.3 Classification .....	120
E.3.7 Classification according to the type of the influencing magnetic field .....	120
E.7 Construction and performance requirements .....	121
E.8 Tests .....	121
E.8.9 Verification of immunity .....	121

### **Annex F (informative) Symbols for proximity switches**

### **Annex DVA (normative) Normative and informative content**

Annex DVA Addition: Add Annex DVA as follows: .....	127
---	-----

### **Annex DVB (normative) Standard references**

Annex DVB Addition: Add Annex DVB as follows: .....	130
---	-----

### **Annex DVC (normative) Standards for components**

Annex DVC Addition: Add Annex DVC as follows: .....	132
---	-----

### **Annex DVD (normative) Clearance and creepage distances for control circuit devices and switching elements**

Annex DVD Addition: .....	133
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## Preface

This is the harmonized CSA Group and UL standard for Low-voltage switchgear and controlgear – Part 5-2: Control circuit devices and switching elements – Proximity switches. It is the second edition of CSA C22.2 No. 60947-5-2, and the fourth edition of UL 60947-5-2. This edition of CSA C22.2 No. 60947-5-2 supersedes the previous edition published in 2014 as CAN/CSA-C22.2 No. 60947-5-2.

This harmonized standard is based on IEC Publication 60947-5-2: Edition 3.1, Low-voltage switchgear and controlgear – Part 5-2: Control circuit devices and switching elements – Proximity switches, issued September 2012. IEC 60947-5-2 is copyrighted by the IEC.

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This standard is considered suitable for use for conformity assessment within the stated scope of the standard.

This standard was reviewed by the CSA Integrated Committee on Industrial Control, under the jurisdiction of the CSA Technical Committee on Industrial Products and the CSA Strategic Steering Committee on Requirements for Electrical Safety, and has been formally approved by the CSA Technical Committee. This standard has been developed in compliance with Standards Council of Canada requirements for National Standards of Canada. It has been published as a National Standard of Canada by CSA Group.

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## Level of harmonization

This standard adopts the IEC text with national differences.

This standard is published as an identical standard for CSA Group and UL.

An identical standard is a standard that is exactly the same in technical content except for national differences resulting from conflicts in codes and governmental regulations. Presentation is word for word except for editorial changes.

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**This consolidated version of IEC 60947-5-2 consists of the third edition (2007) [documents 17B/1570/FDIS and 17B/1576/RVD] and its amendment 1 (2012) [documents 17B/1733/CDV and 17B/1774/RVC]. It bears the edition number 3.1.**

**The technical content is therefore identical to the base edition and its amendment and has been prepared for user convenience.**

International Standard IEC 60947-5-2 has been prepared by subcommittee 17B: Low-voltage switchgear and controlgear, of IEC technical committee 17: Switchgear and controlgear.

The document 17B/1570/FDIS, circulated to the National Committees as Amendment 3, led to the publication of the new edition.

The main changes with respect to the previous edition are as follows:

- modification of Table 3;
- modifications of voltage dips and voltage interruptions immunity tests, in Table 8;
- modification of status of Annex A, now informative.

This publication 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.

The committee has decided that the contents of the base publication and its amendments will remain unchanged until the stability date indicated on the IEC web site under "http://webstore.iec.ch" in the data related to the specific publication. At this date, the publication 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 publication using a colour printer.**

**DV.1 DE Modification of the IEC Foreword by adding the following:**

The numbering system in the standard uses a space instead of a comma to indicate thousands and uses a comma instead of a period to indicate a decimal point. For example, 1 000 means 1,000 and 1,01 means 1.01.

**DV.2 D2 Modification of the IEC Foreword by adding the following:**

This standard shall be read in conjunction with Canadian and United States equivalent standards to the IEC 60947 series per [Table DVB.2](#). Where specifically called for, any reference to IEC 60947-5-2 or IEC 60947-1 shall be to the applicable clause – either the national difference “DV” clause or IEC clause, or a reference to the applicable standard listed in the Annex. The provisions of the general rules are applicable to this standard, where specifically called for.

# LOW-VOLTAGE SWITCHGEAR AND CONTROLGEAR – Part 5-2: Control circuit devices and switching elements – Proximity switches

## 1 General

The provisions of the general rules in IEC 60947-1 are applicable to this standard, where specifically called for. General rules clauses and subclauses thus applicable, as well as tables, figures and appendices, are identified by references to IEC 60947-1, e.g. subclause 7.1.9.3 of IEC 60947-1 or Annex C of IEC 60947-1.

Clauses [1](#) to [8](#) contain the general requirements. Specific requirements for the various types of proximity switches are given in Annex [A](#).

### **1DV D2 Modification of Clause 1 by adding the following:**

**Annex [DVA](#) defines the specific clauses, tables, and figures in this standard which are to be considered normative, informative, or not applicable. Compliance with the normative clauses, tables, and figures is mandatory; compliance with the informative clauses, tables, and figures is optional.**

### 1.1 Scope and object

This part of IEC 60947 applies to inductive and capacitive proximity switches that sense the presence of metallic and/or non-metallic objects, ultrasonic proximity switches that sense the presence of sound reflecting objects, photoelectric proximity switches that sense the presence of objects and non-mechanical magnetic proximity switches that sense the presence of objects with a magnetic field.

These proximity switches are self-contained, have semiconductor switching elements(s) and are intended to be connected to circuits, the rated voltage of which does not exceed 250 V 50 Hz/60 Hz a.c. or 300 V d.c. This Standard is not intended to cover proximity switches with analogue outputs.

The object of this standard is to state for proximity switches:

- definitions;
- classification;
- characteristics;
- product information;
- normal service, mounting and transport conditions;
- constructional and performance requirements;
- tests to verify rated characteristics.