



SLOVENSKI STANDARD
SIST EN 60947-1:1999/A1:1999

01-julij-1999

**Low-voltage switchgear and controlgear - Part 1: General rules. Amendment A1
(IEC 60947-1:1996/A1:1997)**

Low-voltage switchgear and controlgear -- Part 1: General rules

Niederspannungsschaltgeräte -- Teil 1: Allgemeine Festlegungen

Appareillage à basse tension -- Partie 1: Règles générales

Ta slovenski standard je istoveten z: EN 60947-1:1997/A1:1998

ICS:

29.130.20	Niskonapetostne stikalne in krmilne naprave	Low voltage switchgear and controlgear
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SIST EN 60947-1:1999/A1:1999

en

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EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 60947-1/A1

January 1998

ICS 29.120.60

Descriptors: Low-voltage switchgear and controlgear, characteristics, specification, test

English version

Low-voltage switchgear and controlgear
Part 1: General rules
(IEC 60947-1:1996/A1:1997)

Appareillage à basse tension.
Partie 1: Règles générales
(CEI 60947-1:1996/A1:1997)

Niederspannungsschaltgeräte
Teil 1: Allgemeine Festlegungen
(IEC 60947-1:1996/A1:1997)

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This amendment A1 modifies the European Standard EN 60947-1:1997; it was approved by CENELEC on 1998-01-01. 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.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CENELEC member.

This amendment exists 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 Central Secretariat has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

CENELEC

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

Central Secretariat: rue de Stassart 35, B - 1050 Brussels

Foreword

The text of document 17B/855/FDIS, future amendment 1 to IEC 60947-1:1996, prepared by SC 17B, Low-voltage switchgear and controlgear, of IEC TC 17, Switchgear and controlgear, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as amendment A1 to EN 60947-1:1997 on 1998-01-01.

The following dates were fixed:

- latest date by which the amendment has to be implemented
at national level by publication of an identical
national standard or by endorsement (dop) 1998-10-01
- latest date by which the national standards conflicting
with the amendment have to be withdrawn (dow) 1998-10-01

Annexes designated "normative" are part of the body of the standard.
In this standard, annexes N and ZA are normative.
Annex ZA has been added by CENELEC.

Endorsement notice

The text of amendment 1:1997 to the International Standard IEC 60947-1:1996 was approved by CENELEC as an amendment to the European Standard without any modification.

[SIST EN 60947-1:1999/A1:1999](https://standards.iteh.ai/catalog/standards/sist/8db6a9e2-792c-4fa5-a270-f717fc22cc3b/sist-en-60947-1-1999-a1-1999)

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Annex ZA (normative)

Normative references to international publications
with their corresponding European publications

Addition:

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60536-2	1992	Classification of electrical and electronic equipment with regard to protection against electric shock Part 2: Guidelines to requirements for protection against electric shock	-	-
IEC 60947-5-1	1997	Low-voltage switchgear and controlgear Part 5-1: Control circuit devices and switching elements - Electromechanical control circuit devices	EN 60947-5-1 + A11	1997 1997

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**NORME
INTERNATIONALE**

**CEI
IEC**

**INTERNATIONAL
STANDARD**

60947-1

1996

AMENDEMENT 1
AMENDMENT 1
1997-12

Amendement 1

Appareillage à basse tension –

**Partie 1:
Règles générales**

Amendment 1

Low-voltage switchgear and controlgear –

**Part 1:
General rules**

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Commission Electrotechnique Internationale
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Международная Электротехническая Комиссия

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H

For price, see current catalogue

FOREWORD

This amendment has been prepared by subcommittee 17B: Low-voltage switchgear and controlgear, of IEC technical committee 17: Switchgear and controlgear.

The text of this amendment is based on the following documents:

FDIS	Report on voting
17B/855/FDIS	17B/873/RVD

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

Page 3

CONTENTS

Add, on page 7, under annexes, the title of the new annex N:

N Requirements and tests for equipment with protective separation

Page 13

1.2 Normative references

Insert, on page 15, in the existing list, the titles of the following publications:

IEC 60536-2:1992, *Classification of electrical and electronic equipment with regard to protection against electric shock – Part 2: Guidelines to requirements for protection against electric shock*

IEC 60947-5-1:1997, *Low-voltage switchgear and controlgear – Part 5-1: Control circuit devices and switching elements – Electromechanical control circuit devices*

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7.1.4.2 Direction of movement

Replace the text of this subclause by the following new text:

The direction of operation for actuators of devices shall normally conform to IEC 60447. Where devices cannot conform to these requirements, e.g. due to special applications or alternative mounting positions, they shall be clearly marked such that there is no doubt as to the "I" and "O" positions and the direction of operation".

7.1.6 Additional constructional requirements for equipment suitable for isolation

Replace the title of this subclause by the following titles:

7.1.6 Additional requirements for equipment suitable for isolation

7.1.6.1 Additional constructional requirements

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Add, after 7.1.6.1, the following new subclauses:

7.1.6.2 Supplementary requirements for equipment with provision for electrical interlocking with contactors or circuit-breakers

If equipment suitable for isolation is provided with an auxiliary switch for the purpose of electrical interlocking with contactor(s) or circuit-breaker(s) and intended to be used in motor circuits, the following requirements shall apply unless the equipment is rated for AC-23 utilization category.

An auxiliary switch shall be rated according to IEC 60947-5-1 as stated by the manufacturer.

The time interval between the opening of the contacts of the auxiliary switch and the contacts of the main poles shall be sufficient to ensure that the associated contactor or circuit-breaker interrupts the current before the main poles of the equipment open.

Unless otherwise stated in the manufacturer's technical literature, the time interval shall be not less than 20 ms when the equipment is operated according to the manufacturer's instructions.

Compliance shall be verified by measuring the time interval between the instant of opening of the auxiliary switch and the instant of opening of the main poles under no-load conditions when the equipment is operated according to the manufacturer's instructions.

During the closing operation the contacts of the auxiliary switch shall close after or simultaneously with the contacts of the main poles.

A suitable opening time interval may also be provided by an intermediate position (between the ON and OFF positions) at which the interlocking contact(s) is (are) open and the main poles remain closed.

7.1.6.3 Supplementary requirements for equipment provided with means for padlocking the open position

The locking means shall be designed in such a way that it cannot be removed with the appropriate padlock(s) installed. When the equipment is locked by even of a single padlock, it shall not be possible by operating the actuator, to reduce the clearance between open contacts to the extent that it no longer complies with the requirements of 7.2.3.1b).

Alternatively, the design may provide padlockable means to prevent access to the actuator.

Compliance with the requirements to padlock the actuator shall be verified using a padlock specified by the manufacturer or an equivalent gauge, giving the most adverse conditions, to simulate locking. The force F specified in 8.2.5.2.1 shall be applied to the actuator in an attempt to operate the equipment from the open position to the closed position. Whilst the force F is applied the equipment shall be subjected to a test voltage across open contacts. The equipment shall be capable of withstanding the test voltage required according to table 14 appropriate to the rated impulse withstand voltage.

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Add a new subclause 7.2.3.7

7.2.3.7 Requirements for equipment with protective separation

Requirements for equipment with protective separation are given in annex N.

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8.2.5.2.2 Dependent and independent power operation

Replace this subclause by the following new subclauses:

8.2.5.2.2 Dependent power operation

With the equipment in the closed position, the fixed and moving contacts of the pole for which the test is deemed to be the most severe shall be fixed together, e.g by welding.

The supply voltage to the power operator shall be applied at 110 % of its normal rated value to attempt to open the contact system of the equipment.

Three attempts to operate the equipment at 5 min intervals by the power operator shall be made, each for a period of 5 s, unless an associated protective device of the power operator limits the time to a shorter period.

Verification shall be made to 8.2.5.3.2.

NOTE – In Canada and the United States of America devices meeting these requirements are not accepted as assuring isolation by themselves.

8.2.5.2.3 Independent power operation

With the equipment in the closed position, the fixed and moving contacts of the pole for which the test is deemed to be the most severe shall be fixed together, e.g by welding.

The stored energy of the power operator shall be released to attempt to open the contact system of the equipment.

Three attempts to operate the equipment by releasing the stored energy shall be made.

Verification shall be made to 8.2.5.3.2.

NOTE – In Canada and the United States of America devices meeting these requirements are not accepted as assuring isolation by themselves.