

INTERNATIONAL STANDARD

NORME INTERNATIONALE

AMENDMENT 1
AMENDEMENT 1

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

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



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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/1653/FDIS	17B/1667/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.

The committee has decided that the contents of this amendment and the base publication will remain unchanged until the maintenance result 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- withdrawn;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.

CONTENTS

Modify the title of Annex D to read:

Annex D – Vacant

Add the following new annex title:

Annex M (normative) – Terminal marking, distinctive number and distinctive letter for control circuit devices

Add the following new table titles:

Table M.1 – Diagrams of control switches

Table M.2 – Diagrams of contactor relays designated by the distinctive letter E

Table M.3 – Diagrams of contactor relays designated by the distinctive letter Y

FOREWORD

Before the final paragraph that begins “The committee has decided ... “ insert the following new paragraph:

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.

1.1 Scope and object

Replace the seventh paragraph by the following new text:

This standard does not include the relays covered in IEC 60255 or in the IEC 61810 series, nor automatic electrical control devices for household and similar purposes.

1.2 Normative references

Replace the reference to IEC 60068-2-30:1980 by the following:

IEC 60068-2-30:2005, *Environmental testing – Part 2-30: Tests – Test Db: Damp heat, cyclic (12 h + 12 h cycle)*

Insert the following new reference:

IEC 60417, *Graphical symbols for use on equipment*

Replace the reference to IEC 60947-1:1999 by the following:

IEC 60947-1:2007, *Low-voltage switchgear and controlgear – Part 1: General rules*

Add, after the reference to IEC 60947-4-1, the following references:

Amendment 1 (2002)

Amendment 2 (2005)

Insert the following new reference:

IEC 60947-5-5:2005, *Low-voltage switchgear and controlgear – Part 5-5: Control circuit devices and switching elements – Electrical emergency stop device with mechanical latching function*

Replace the reference to IEC 61000-4-3:2002 by the following:

IEC 61000-4-3:2008, *Electromagnetic compatibility (EMC) – Part 4-3: Testing and measurement techniques – Radiated, radio-frequency, electromagnetic field immunity test*

Replace the reference to IEC 61000-4-4:1995 by the following:

IEC 61000-4-4:2004, *Electromagnetic compatibility (EMC) – Part 4-4: Testing and measurement techniques – Electrical fast transient/burst immunity test*

Replace the reference to IEC 61000-4-5:1995 by the following:

IEC 61000-4-5:2005, *Electromagnetic compatibility (EMC) – Part 4-5: Testing and measurement techniques – Surge immunity test*

Replace IEC 61000-4-6:1996 and its Amendment 1 (2000) by the following:

IEC 61000-4-6:2008, *Electromagnetic compatibility (EMC) – Part 4-6: Testing and measurement techniques – Immunity to conducted disturbances, induced by radio-frequency fields*

Replace the reference to IEC 61000-4-11:1994 by the following:

IEC 61000-4-11:2004, *Electromagnetic compatibility (EMC) – Part 4-11: Testing and measurement techniques – Voltage dips, short interruptions and voltage variations immunity tests*

Add, after the reference to IEC 61140, the following reference:

Amendment 1 (2004)

Replace the reference to CISPR 11:1997 by the following:

CISPR 11:2003, *Industrial, scientific and medical (ISM) radio-frequency equipment – Electromagnetic disturbance characteristics – Limits and methods of measurement*
Amendment 1 (2004)
Amendment 2 (2006)

5.1 Nature of information

Modify the existing text of item g) as follows:

g) Rated impulse withstand voltage (see 4.3.1.3).

Modify the existing text of item l) as follows:

l) Conditional short-circuit current.

5.2.2 Terminal identification and marking

Replace the text of this subclause as follows:

Subclause 7.1.8.4 of IEC 60947-1 applies.

5.2.3 Functional markings

Add, at the end of this subclause, the following new paragraph:

Symbols shall be in accordance with IEC 60417.

5.2.4 Emergency stop

Replace the existing text by the following:

Actuator shape and colour, background colour and direction of unlatching for emergency stop devices with mechanical latching function shall be in accordance with 4.2 of IEC 60947-5-5.

5.2.5.2 Terminal markings for operating diagrams

Add, at the end of the existing paragraph, the following new sentence:

See also Annex M.

Table 2 – Mounting hole diameter and dimensions of the key recess (if any)

Replace the word “Taille” in the heading of the first column by the word “Size”.

7.1 Constructional requirements

Replace the orphan text, before 7.1.1, as follows:

Subclause 7.1 of IEC 60947-1 applies except for 7.1.2, 7.1.3, 7.1.7, 7.1.9 and 7.1.13, and with the following additions:

7.1.3 Clearances and creepage distances

Replace the existing text of this subclause by the following:

Minimum values are given in Table 13 and Table 15 of IEC 60947-1.

7.1.4.5 Emergency stop

Replace the existing note by the following new note.

NOTE Additional requirements for emergency stop devices with a latching function are given in IEC 60947-5-5.

7.1.6 Conditions for control switches suitable for isolation

Replace the existing text of the first paragraph by the following new text:

A control switch, suitable for isolation shall be manually operated with a direct opening action (see Annex K) and shall comply with the isolating function in the open position (see 2.1.19 and 7.1.7 of IEC 60947-1).

8.3.2.1 General requirements

Replace the existing text of the second paragraph by the following:

The tests shall be performed with the actuator operated by a machine complying with the requirements of 8.3.2.1 a) for linear movement or, for a rotary switch, in accordance with 8.3.2.1 b) or 8.3.2.1 c).

Add, after item b), the following new item c):

- c) For limited movement rotary switches, operation shall be at a speed of 1 to 4 revolutions per second.

8.3.3.5.2 Making and breaking capacities of switching elements under normal conditions

Modify the existing text of the fourth dashed item of the second paragraph as follows:

- 5 000 operations at 10 s intervals (or at a shorter interval determined by the manufacturer).

8.3.4.3 Test circuit and test quantities

Replace, in the second paragraph, the first sentence by the following:

The test circuit load impedance shall be an air-cored inductor in series with a resistor, adjusted to a prospective current of 1 000 A, or another value if stated by the manufacturer but not less than 100 A, at a power factor of between 0,5 and 0,7 and at the rated operational voltage.

Figure 4 – Examples of contact elements (schematic sketches)

Add, in Figure 4e), in the last column, the following note:

NOTE Multiple electrically separated contact configurations are also covered by Zb.

B.2 Construction

This correction applies to the French text only.

Annex D (normative) – Clearances and creepage distances of control circuit devices

Replace the title and the text of this annex by the following:

Annex D – Vacant

H.7.1.2 Minimum operational current (I_m)

Replace the note as follows:

NOTE In Table A.2 the minimum operational currents are specified for the ratings shown.

Table H.1 – Immunity tests

Replace the existing table by the following new table: