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IEC SC 121A : LOW-VOLTAGE SWITCHGEAR AND CONTROLGEAR	
SECRETARIAT: France	SECRETARY: Mr Michaël LAHEURTE
OF INTEREST TO THE FOLLOWING COMMITTEES: TC 44	PROPOSED HORIZONTAL STANDARD: <input type="checkbox"/> Other TC/SCs are requested to indicate their interest, if any, in this CDV to the secretary.

FUNCTIONS CONCERNED: <input checked="" type="checkbox"/> EMC <input type="checkbox"/> ENVIRONMENT <input type="checkbox"/> QUALITY ASSURANCE <input checked="" type="checkbox"/> SAFETY	
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TITLE: Low-voltage switchgear and controlgear – Part 5-5: Control circuit devices and switching elements – Electrical emergency stop device with mechanical latching function

PROPOSED STABILITY DATE: 2028

NOTE FROM TC/SC OFFICERS:
SC 121A Officers support circulation of CDV for project IEC 60947-5-5 ED2.
NC experts are kindly requested to refer their comments to line number.

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

LOW-VOLTAGE SWITCHGEAR AND CONTROLGEAR –

Part 5-5: Control circuit devices and switching elements – Electrical emergency stop device with mechanical latching function

FOREWORD

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International Standard IEC 60947-5-5 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 second edition cancels and replaces the first edition published in 1997. This edition constitutes a technical revision.

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

- a) Re-shaping document with the clause numbers and names as other 60947 series;
- b) Review the test method to reasonably determine that the latch mechanism meets the requirements of the standard;

- c) New Annex B for special requirements for illuminated push-button type emergency stop devices, including the reference to a function to distinguish between “active and inactive” by changing the color of the push-button depending on the illumination.

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

FDIS	Report on voting
XX/XX/FDIS	XX/XX/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.

The language used for the development of this International Standard is English.

This standard shall be used in conjunction with IEC 60947-1 and with IEC 60947-5-1.

The provisions of the general rules, 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 annexes are identified by a reference to IEC 60947-1, for example 1.2.3 or Annex A of IEC 60947-1:2020.

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

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at www.iec.ch/members_experts/refdocs. The main document types developed by IEC are described in greater detail at <http://www.iec.ch/standardsdev/publications>.

The committee has decided that the contents of the base publication and its amendment 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.

INTRODUCTION

1
2

3 The present document deals specifically with electrical emergency stop devices with
4 mechanical latching function and gives additional electrical and mechanical requirements to
5 those given in the following International Standards:

- 6 – ISO 13850 giving requirements for the emergency stop function of a machine, whatever be
7 the energy used;
- 8 – IEC 60204-1 giving additional requirements for an emergency stop function realized by the
9 electrical equipment of a machine;
- 10 – IEC 60947-5-1 specifying electrical characteristics of electromechanical control circuit
11 devices.

12

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13 **LOW-VOLTAGE SWITCHGEAR AND CONTROLGEAR –**
14 **Part 5-5: Control circuit devices and switching elements –**
15 **Electrical emergency stop device with mechanical latching function**
16

17 **1 Scope**

18 This part of IEC 60947-5 provides detailed specifications relating to the electrical and
19 mechanical construction of emergency stop devices with mechanical latching function and to
20 their testing.

21 This standard is applicable to electrical control circuit devices and switching elements which
22 are used to initiate an emergency stop signal. Such devices can be provided with their own
23 enclosure and shall be installed according to the product documentation.

24 This standard does not apply to:

- 25 – emergency stop devices for non-electrical control applications, for example hydraulic or
26 pneumatic;
- 27 – emergency stop devices without mechanical latching function.

28 An emergency stop device conforming to this document can also be used as part of an
29 emergency switching off means in compliance with IEC 60364-5-53.

30 NOTE See also 9.2.3.4 of IEC 60204-1:2016+AMD1:2021.

31 This standard does not deal with any specific requirements on acoustic noise as the noise
32 emission of electrical emergency stop devices with mechanical latching function is not
33 considered to be a relevant hazard.

34 **2 Normative references**

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

39 IEC 60068-2-1:2007, *Environmental testing – Part 2-1: Tests – Test A: Cold*

40 IEC 60068-2-2:2007, *Environmental testing – Part 2-2: Tests – Test B: Dry heat*

41 IEC 60068-2-6:2007, *Environmental testing – Part 2-6: Tests – Test Fc: Vibration (sinusoidal)*

42 IEC 60068-2-11:2021, *Environmental testing – Part 2: Tests – Test Ka: Salt mist*

43 IEC 60068-2-27:2008, *Environmental testing – Part 2-27: Tests – Test Ea and guidance:*
44 *Shock*

45 IEC 60068-2-30:2005, *Environmental testing – Part 2-30: Tests – Test Db: Damp heat, cyclic*
46 *(12 h + 12 h cycle)*

47 IEC 60068-2-75:2014, *Environmental testing – Part 2-75: Tests – Test Eh: Hammer tests*

48 IEC 60947-1:2020, *Low-voltage switchgear and controlgear – Part 1: General rules*
49
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56

57 IEC 60947-5-1:2024, *Low-voltage switchgear and controlgear – Part 5-1: Control circuit devices*
58 *and switching elements – Electromechanical control circuit devices*

59

60 ISO 13850:2015, *Safety of machinery – Emergency stop function – Principles for design*

61 **3 Terms and definitions**

62 **3.1 General**

63 For the purposes of this document, the following terms and definitions apply in addition to the
64 terms and definitions given in IEC 60947-1 and in IEC 60947-5-1.

65 ISO and IEC maintain terminological databases for use in standardization at the following
66 addresses:

- 67 • IEC Electropedia: available at <http://www.electropedia.org/>
- 68 • ISO Online browsing platform: available at <http://www.iso.org/obp>

69 **3.2**

70 **emergency stop function**

71 function which is intended:

- 72 – to avert or to reduce hazards to persons, damage to machinery or to work in progress;
- 73 – to be initiated by a single human action.

74 [SOURCE: ISO 12100:2010, 3.40]

75 **3.3**

76 **emergency stop device**

77 manually operated control circuit device used to initiate an emergency stop function

78 Note 1 to entry: An emergency stop device can also provide auxiliary functions, for example for redundancy and/or
79 for signalling through additional contact element(s). Such additional contact(s) can be normally open and/or normally
80 closed.

81 **3.4**

82 **emergency stop signal**

83 signal which is generated by an emergency stop device contact, and used to initiate an
84 emergency stop function

85 **3.5**

86 **actuating system (of an emergency stop device)**

87 mechanical parts which transmit the actuating force to the contact elements

88 [IEC 60050-441:1984, 441-15-21, modified – restricted to electromechanical emergency stop
89 devices; the note is not relevant anymore]

90 **3.6**

91 **actuator (of an emergency stop device)**

92 part of the actuating system which is actuated by a part of the human body

93 Note 1 to entry: Examples of an actuator include: a push-button, a wire, a rope, or a foot pedal.

94 [IEC 60050-441:1984, 441-15-22, modified – actuation is intended to be achieved by human
95 only]