



SLOVENSKI STANDARD SIST EN 50134-2:2000

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Alarm systems - Social alarm systems - Part 2: Trigger devices

Alarm systems - Social alarm systems -- Part 2: Trigger devices

Alarmanlagen - Personen-Hilferufanlagen -- Teil 2: Auslösegeräte

Systèmes d'alarme - Systèmes d'alarme sociale -- Partie 2: Déclencheurs

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EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 50134-2

May 1999

ICS 13.320

English version

**Alarm systems - Social alarm systems
Part 2: Trigger devices**

Systemes d'alarme
Systemes d'alarme sociale
Partie 2: Déclencheurs

Alarmanlagen - Personen-Hilferufanlagen
Teil 2: Auslösegeräte

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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 European Standard 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.

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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

This European Standard was prepared by the Technical Committee CENELEC TC 79, Alarm systems.

The text of the draft was submitted to the formal vote and was approved by CENELEC as EN 50134-2-1 on 1998-08-01; it was later renumbered EN 50134-2.

The following dates were fixed:

- latest date by which the EN has to be implemented
at national level by publication of an identical
national standard or by endorsement (dop) 1999-12-01
- latest date by which the national standards
conflicting with the EN have to be withdrawn (dow) 1999-12-01

EN 50134 will consist of the following parts, under the general title "Alarm systems - Social alarm systems":

| | |
|--------|------------------------------------|
| Part 1 | System requirements |
| Part 2 | Trigger devices |
| Part 3 | Local unit and controller |
| Part 4 | (not used) |
| Part 5 | Interconnections and communication |
| Part 6 | (not used) |
| Part 7 | Application guidelines |

NOTE 1: Except for this part 2 and part 7, which was published in 1996, all parts of the EN 50134 series are still under consideration.

NOTE 2: The above list reflects the changes made to the EN 50134 structure after the publication of part 7.

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Introduction

Since malfunctions in human activated trigger devices may involve the risk of human life, it is essential that the technical quality and reliability of such equipment should be higher than that normally required for consumer electronics.

The design should also take into consideration situations where the user may be unable to send an alarm, or where an unwanted alarm may be sent, due to technical malfunctions or poor ergonomic design.

1 Scope

This Standard specifies the requirements and tests for manually-activated trigger devices forming part of a social alarm system.

This standard only applies to manually-activated trigger devices that transmit the alarm triggering signal to a local unit or controller via cable or wire-free radio transmission, i.e.

- a) Push button fixed;
- b) Pull switch fixed;
- c) Push button portable;
- d) Pull activated portable.

This standard also gives guidance on automatically-activated trigger devices. For the requirements and tests applicable to such trigger devices, references are made to appropriate CEN/CENELEC standards for fire alarm, gas alarm and intruder alarm system components.

This standard does not specify EMC emission or electrical safety requirements. These are covered by other standards.

2 Normative references

This European Standard incorporates, by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

| | | |
|----------|--------|---|
| EN 54 | series | Fire alarm system components (CEN standards) |
| EN 50054 | | Electrical apparatus for the detection and measurement of combustible gases - General requirements and test methods |
| EN 50055 | | Electrical apparatus for the detection and measurement of combustible gases - Performance requirements for Group I apparatus indicating up to 5% (v/v) methane in air |
| EN 50056 | | Electrical apparatus for the detection and measurement of combustible gases - Performance requirements for Group I apparatus indicating up to 100% (v/v) methane |

| | | |
|--------------|------|--|
| EN 50057 | | Electrical apparatus for the detection and measurement of combustible gases - Performance requirements for Group II apparatus indicating up to 100% lower explosive limit |
| EN 50058 | | Electrical apparatus for the detection and measurement of combustible gases - Performance requirements for Group II apparatus indicating up to 100% (v/v) gas |
| EN 50130-4 | 1995 | Alarm systems - Part 4: Electromagnetic compatibility - Product family standard: Immunity requirements for components of fire, intruder and social alarm systems |
| EN 50130-5 | | Part 5: Environmental test methods |
| EN 60068-1 | 1994 | Environmental testing - Part 1: General and guidance (IEC 60068-1:1988 + corrigendum Oct. 1988 + A1:1992) |
| EN 300 220-2 | | Electromagnetic compatibility and Radio spectrum Matters (ERM) - Short range devices - Technical characteristics and test methods for radio equipment to be used in the 25 MHz to 1 000 MHz frequency range with power levels ranging up to 500 mW - Part 2: Supplementary parameters not intended for regulatory purposes |
| IEC 60341-1 | 1970 | Push button switches - Part 1: General requirements and measuring methods (Publication withdrawn and replaced by IEC 61020 series) |

3 Definitions

For the purposes of this standard, the following definitions apply:

- 3.1 social alarm system:** A system providing 24 hours facilities for alarm triggering, identification, signal transmission, alarm reception, two-way speech communication, reassurance and assistance, for use by persons who can be considered to be living at home at risk.
- 3.2 controller:** The interface between one or more local units and the alarm transmission system. (A controller may include the local unit).
- 3.3 local unit:** The interface between the user and the controller which enables 2-way speech. (A local unit may be an integral part of the controller).
- 3.4 trigger device:** The system part, operated by a human or automatically that communicates to the local unit or controller, initiating the alarm triggering signal.
- 3.5 fixed trigger device:** A trigger device in a fixed position in relation to the local unit or building.
- 3.6 portable trigger device:** A trigger device carried by the user and providing wire-free communication.

3.7 activity monitoring trigger device: An alarm function that operates automatically when a routine activity of the user, being monitored by a trigger device, is modified or omitted within a specified period.

3.8 fire alarm trigger: A component of a fire detection system which contains at least one sensor which constantly, or at frequent intervals, monitors at least one suitable physical and/or chemical phenomenon associated with fire that provides an alarm triggering signal to be received and processed by the local unit and controller.

3.9 gas alarm trigger: A component of a gas detection system which contains at least one sensor which constantly, or at frequent intervals, monitors at least one suitable physical and/or chemical phenomenon associated with gas that provides an alarm triggering signal to be received and processed by the local unit and controller.

3.10 interconnections: A transmission system that provides the communication between trigger devices and local unit and controller.

3.11 user: A person living at home at risk.

3.12 alarm condition: A condition following the pre-alarm condition.

3.13 normal condition: A system which is fully operational and is not in any other condition.

3.14 fault warning signal: Any signal transmitted by a trigger device to indicate battery low or faulty condition of the trigger.

4 Manually-activated trigger devices

4.1 General requirements

- a) A manually-activated trigger device may be fixed or portable.
- b) The requirements for the design, function and testing of the different types of manually-activated trigger devices are minimum.
- c) The fixed trigger device shall be capable of generating an alarm triggering signal, either by cable or wire-free means, which is capable of being decoded by the local unit or controller.
- d) The portable trigger device shall be capable of generating an alarm triggering signal, by wire-free means, which is capable of being decoded by the local unit or controller and distinguishable from fixed trigger devices and automatically-activated trigger devices.
- e) When the only function of a portable trigger is to be used as part of a social alarm system it shall be powered from primary (non-rechargeable) batteries.
- f) The wire-free radio transmitter type of trigger device and associated receiver or local unit or controller shall fulfil the requirements of the local countries appropriate radio regulatory requirements and any other standards that are applicable.

- g) The wire-free radio transmitter type of trigger device shall transmit an identification code with one out of a minimum of 256 different combinations when an alarm triggering signal is generated.

4.2 Functional requirements

4.2.1 General

A trigger device must be non-latching and require a single push or pull action by the user.

4.2.2 Trigger device with internal primary batteries

- a) Primary batteries shall have a capacity large enough to ensure correct functioning of the trigger device. After 12 months of normal operation, with 1 activation per day of the trigger device, it shall still be possible to generate an alarm output signal which is capable of being detected by the local unit or controller.
- b) The trigger device shall be capable of generating a fault warning signal to the local unit or controller when the trigger is activated before the battery voltage has decreased to the lower limit specified for the d.c. supply input voltage (V_B min.) by the manufacturer.

4.2.3 Trigger device with internal power supply connected to the a.c. mains and sealed rechargeable batteries

- a) The power supply shall be capable of operating correctly within variations in the a.c. mains of +10% to -15% of the nominal voltage.
- b) Within the allowed variations of the a.c. mains voltage there must be no discharge of the battery when the trigger device is in normal condition.
- c) If the a.c. mains is interrupted the trigger device shall automatically be switched to the battery without any disconnections of the supply current.
- d) The capacity of the fully charged battery shall be large enough to ensure correct functioning of the trigger device. After 24 hours of battery operation in normal operating condition, it shall be possible to generate an alarm output signal which is capable of being detected by the local unit or controller.
- e) A fully discharged battery shall be recharged to at least 80 % of its nominal capacity within 24 hours and to its rated capacity within another 48 hours.
- f) The trigger device shall be capable of giving a fault warning signal to the local unit or controller within 2 hours of the a.c. mains supply failure period.
- g) The trigger device shall have a visual indication of normal a.c. supply.

4.2.4 Push button fixed or portable type

The trigger push button shall be more prominent than, and clearly distinguishable from, other buttons by colour and size.

4.2.5 Push button fixed type

The trigger push button shall have a minimum trigger activation area of 200 mm² with a minimum dimension of not less than 5 mm.

4.2.6 Pull switch fixed type

The pull switch type of trigger shall comprise of at least one handle connected to the pull switch body by a rigid or flexible link.

4.2.7 Push button portable type

The trigger push button shall have a minimum activation area of 150 mm² with a minimum dimension of not less than 5 mm.

5 Test of manually-activated trigger devices

5.1 Test categories

The tests are divided into 3 categories:

- a) Functional tests according to 5.5
- b) Wire-free radio transmission measurements according to 5.6
- c) Environmental tests according to 5.7

5.2 Standard atmospheric condition for testing

Unless otherwise specified, the atmospheric condition in the laboratory shall be the standard atmospheric conditions for measurements and tests, specified in EN 60068-1:1994, subclause 5.3, as follows:

- Temperature : 15 °C - 35 °C;
- Relative humidity : 25 % - 75 %;
- Air pressure : 86 kPa - 106 kPa (860 mbar - 1060 mbar)

5.3 Number of trigger devices used for testing

Generally, sequential testing (the same trigger device used for all tests) is not required, but may be accepted if only a few trigger devices are available. Wherever possible a trigger device should only be subject to one endurance test. If more trigger devices are available, the time required for the testing, and the stress of the individual trigger devices, may be minimized.

The tests may be carried out in any order.

The required minimum number of the different types of trigger devices to be available for a test depends on the type of trigger device and the environmental group to be specified for that device (see 5.7.2).

NOTE : It is recommended that three out of the total number of trigger devices available for the type testing are always designated for the functional tests and that a further three devices are designated for the free field transmission test if the trigger device uses wire-free transmission.

5.4 General conditions for tests

5.4.1 Triggers using cable transmission

5.4.1.1 Mounting and orientation

Unless otherwise stated in a test procedure, the trigger device under test shall be mounted in its normal orientation by the normal means of mounting indicated by the manufacturer, and except where required for functional testing, the trigger device shall be in its normal condition (not activated).

5.4.1.2 Electrical connections

- a) The test set-up used during functional and environmental tests depends on the type of power source and the type of alarm output circuit used for the trigger device.
- b) If the test procedure requires the trigger device to be in the operating condition, it shall always be connected to the a.c. mains or powered with d.c. from internal or external power supply, or from the local unit or controller, as specified by the manufacturer.
- c) Unless otherwise required in the test procedure the a.c. mains voltage or d.c. supply voltage for the trigger device under test shall be adjusted to its nominal value.
- d) The trigger device shall, unless otherwise stated in the test procedure, signal to an appropriate local unit or controller. During some of the function tests, or if the trigger device is only a contact function in a fixed trigger device, it may signal to a test equipment which is able to monitor the status of the trigger device.
- e) If the trigger device is provided with separate outputs for external indicators or control circuits, except for outputs to the local unit or controller, it shall also be possible to monitor these outputs during testing.

5.4.2 Triggers using wire-free transmission

5.4.2.1 Mounting and orientation

Unless otherwise stated in the test procedure, the trigger device under test, as well as the local unit or controller used for functional testing, shall be mounted in test fixtures and interconnected as described in annex C (normative), during the functional tests as well as during the environmental tests.

5.4.2.2 Electrical connections

Unless otherwise specified trigger device shall be provided with fresh batteries before start of testing.

As the local unit or controller is not part of the test specimen, the local unit or controller shall be powered, during all tests, with the nominal a.c. or d.c. supply voltage as specified by the manufacturer.

5.5 Functional tests

5.5.1 Triggers using cable transmission

5.5.1.1 Power supply powered from primary (non-rechargeable) batteries

V_B max., V_B nom. and V_B min. used in the functional test below shall be specified by the manufacturer prior to the testing.

- a) Disconnect the batteries and power the trigger device from an external variable d.c. supply.
- b) With the d.c. supply voltage adjusted to nominal battery voltage V_B nom. check that the trigger functions correctly in normal (output not activated) condition as well as alarm (output activated) condition.
- c) Repeat b) with the d.c. supply voltage adjusted to maximum battery voltage V_B max.
- d) Adjust the d.c. supply voltage to the minimum battery voltage V_B min. $\pm 1\%$ as specified by the manufacturer of the trigger device, and check that the trigger functions correctly. Activate the trigger device and check that it goes into alarm condition (output activated) and that the battery low warning signal is initiated.

5.5.1.2 Measurements of contact and insulation resistances for mechanical contact function

This subclause only applies to trigger devices if the alarm output circuit of the trigger device is a mechanical contact function (e.g. mechanical switch or relay) with no electronic circuits used for fault monitoring or for generating the output alarm.

The contact and insulation resistances shall be measured according to annex A (normative) for all test samples delivered for testing before the start of any other tests.

Criteria for compliance:

- a) For each type of contact in the trigger device, the contact resistance measured by each of the measurements shall be less than 100 m Ω . Possible faults experienced during the measurements shall also be noted in the test report.
- b) For each type of contact in the trigger device, the insulation resistance shall be not less than 10 M Ω .

5.5.2 Triggers using wire-free transmission

Unless otherwise specified the function tests are carried out with the trigger device and the local unit or controller mounted in the rf-shielded test fixtures as described in 5.4.2.

NOTE: If this is not possible during certain tests, care shall be taken to prevent all unwanted radio signal interferences from activating the local unit or controller e.g. testing in a shielded room.