SLOVENSKI STANDARD

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Sistemi za odkrivanje in javljanje požara ter alarmiranje - 11. del: Ročni javljalniki

Fire detection and fire alarm systems - Part 11: Manual call points

Brandmeldeanlagen - Teil 11: Handfeuermelder

Systemes de détection automatique d'incendie - Partie 11: Déclencheurs manuels d'alarme

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Fire detection and fire alarm systems - Part 11: Manual call points

Systèmes de détection automatique d'incendie - Partie 11: Déclencheurs manuels d'alarme

Brandmeldeanlagen - Teil 11: Handfeuermelder

This European Standard was approved by CEN on 19 February 2001.

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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 CEN member into its own language and notified to the Management Centre has the same status as the official versions.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

Management Centre: rue de Stassart, 36 B-1050 Brussels

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Foreword

This European Standard has been prepared by Technical Committee CEN/TC 72 "Fire detection and fire alarm systems", the secretariat of which is held by BSI.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by November 2001, and conflicting national standards shall be withdrawn at the latest by November 2003. For products which have complied with the relevant national standard before the date of withdrawal (dow), as shown by the manufacturer or by a certification body, this previous standard may continue to apply for production until November 2006.

This European Standard has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive(s).

This standard has been prepared in co-operation with the CEA (Comité Européen des Assurances) and with EURALARM (Association of European Manufacturers of Fire and Intruder Alarm Systems).

Information on the relationship between this European Standard and other standards of the EN 54 series is given in Annex A of EN 54-1:1996.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

Introduction

This European Standard has been drafted on the basis of appearance and functions which should be provided on all manual call points for use in fire detection and fire alarm systems. The colours, dimensions, shapes and methods of operation are based on recognised operating principles which give confidence and recognition to the user when operated in genuine fire alarm situations.

It is important for manual call points to be recognisable and simple to use, without the need to read elaborate instructions so that anyone discovering a fire is able to use the manual call point without previous familiarity with it.

The purpose of a manual call point is to enable a person discovering a fire to initiate the operation of a fire alarm system so that appropriate measures can be taken.

The intention of this European standard is to specify requirements for operation and reliability. The methods of operation of the manual call points covered are as follows:

- Type A: direct operation (single action);
- Type B: indirect operation (double action).

Both types require the breaking or the visible displacement by change of the position of a frangible element forming part of the front face, which is considered to be the most suitable method for general application and which act as a deterrent to the misuse of the device.

Importance has been placed on identifying the manual call point, the method by which it is activated and an indication to the user that the initiation of an alarm has been given.

The resulting standard takes into account national variances in custom and practice and language in bringing together common elements that contribute towards a standard device for use throughout Europe.

1 Scope

This European Standard specifies the requirements and methods of test for manual call points in fire detection and fire alarm systems in and around buildings. It takes into account indoor and outdoor conditions, the appearance and operation of the manual call points for type A "direct operation" and type B "indirect operation" and covers those which are simple mechanical switches, those which are fitted with simple electronic components (e.g. resistors, diodes) and those which contain active electronic components and which work with the control panels for signalling and identifying, for example, an address or location.

This European standard does not cover manual call points for special applications, for example manual call points that are intrinsically safe or for use in hazardous conditions, if such applications require additional or other requirements or tests than those given in this standard.

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 (including amendments).

ISO/IEC-Publication	Year	Title	EN/HD	Year
-		Fire detection and fire alarm systems - Part 1: Introduction	EN 54-1	1996
-		Fire detection and fire alarm systems - Part 2: Control and indicating equipment	EN 54-2	1997
-	-	Safety of machinery – Ergonomics requirements for the design of displays and control actuators - Part 3: Control actuators	EN 894-3	2000
-	-	Alarm systems – Part 4: Electromagnetic compatibility - Product family standard: Immunity requirements for components of fire, intruder and social alarm systems	EN 50130-4	1995
IEC 60068-1	1988	Environmental testing. Part 1: General and guidance (IEC 60068-1 : 1988 + Corrigendum 1988 + A1 : 1992)	EN 60068-1	1994
IEC 60068-2-1	1990	Environmental testing - Part 2: Tests - Tests A: Cold (IEC 60068-2-1 : 1990)	EN 60068-2-1	1993
IEC 60068-2-1/A1	1993	Environmental testing - Part 2: Tests - Tests A: Cold (IEC 60068-2-1/ A1 : 1993)	EN 60068-2-1/A1	1993
IEC 60068-2-1/A2	1994	Environmental testing - Part 2: Tests - Tests A: Cold (IEC 60068-2-1/ A2 : 1994)	EN 60068-2-1/A2	1994
IEC 60068-2-2	1974	Basic environmental testing procedures - Part 2 : Tests - Test B: Dry heat (IEC 60068-2-2 : 1974 + IEC 68-2-2A : 1976)	EN 60068-2-2	1993
IEC 60068-2-2/A1	1993	Basic environmental testing procedures - Part 2 : Tests - Test B: Dry heat (IEC 60068-2-2/A1 : 1993)	EN 60068-2-2/A1	1993
IEC 60068-2-2/A2	1994	Basic environmental testing procedures - Part 2 : Tests - Test B: Dry heat (IEC 60068-2-2/A2 : 1994)	EN 60068-2-2/A2	1994
IEC 60068-2-3	1969	Basic environmental testing procedures - Part 2: Tests - Test Ca: Damp heat, steady state	HD 323.2.3 S2	1987
IEC 60068-2-6	1995	Environmental testing - Part 2: Tests - Test Fc: Vibration (sinusoidal) (IEC 60068-2-6 : 1995 + Corrigendum 1995)	EN 60068-2-6	1995
IEC 60068-2-18	1989	Environmental testing - Part 2: Tests - Test R and guidance: Water	-	-
IEC 60068-2-18/A1	1993	Environmental testing - Part 2: Tests - Test R and guidance: Water (Amendment 1)	-	-
IEC 60068-2-27	1987	Basic environmental testing procedures- Part 2: Tests - Test Ea and guidance: Shock (IEC 60068-2-27 : 1987)	EN 60068-2-27	1993
IEC 60068-2-30	1980	Basic environmental testing procedures - Part 2: Tests - Test Db and guidance: Damp heat, cyclic (12 + 12-hour cycle)	HD 323.2.30 S3	1988
IEC 60068-2-30/A1	1985	Basic environmental testing procedures - Part 2: Tests - Test Db and guidance: Damp heat, cyclic (12 + 12-hour cycle)	-	-
IEC 60068-2-42	1982	Basic environmental testing procedures - Part 2: Tests - Test Kc: Sulphur dioxide test for contacts and connections	-	-
IEC 60068-2-56	1988	Environmental testing - Part 2: Tests - Test Cb: Damp heat, steady state, primarily for equipment	HD 323.2.56 S1	1990
ISO 209-1	1989	Wrought aluminium and aluminium alloys -	-	-

		Chemical composition and forms of products - Part 1: Chemical composition		
ISO 3098-0	1997	Technical product documentation - Lettering - Part 0: General requirements	EN ISO 3098-0	1997
ISO 3864	1984	Safety colours and safety signs	-	-

3 Terms and definitions

For the purposes of this European Standard, the terms and definitions given in EN 54-1 : 1996 apply together with the following:

3.1
alarm condition
the condition of the manual call point after the operating element has been activated

3.2
frangible element
a component which is glass or has the appearance of glass and which after receiving a blow or pressure as instructed, is physically broken or is visibly displaced by change of position and remains in that condition until replaced or reset

NOTE The frangible element is intended to give protection against unintentional operation and to be a deterrent against misuse. The visible displacement of the frangible element is accepted as apparent breaking.

3.2.1
non-resettable frangible element
a frangible element that needs to be replaced after the activation of the manual call point, in order for the manual call point to be able to return to the normal condition

3.2.2
resettable frangible element
a frangible element that can be returned to its original position without replacement, in order for the manual call point to be able to return to the normal condition

3.3
front face
the area within the outline of the front view of the manual call point excluding the area of the operating face

NOTE See figures 1 and 2, item 1.

3.4
manual call point
a component of a fire detection and fire alarm system which is used for the manual initiation of an alarm [EN 54-1 : 1996]

Manual call points are divided into two types depending on the method of operation:

3.4.1
type A: direct operation
a manual call point in which the change to the alarm condition is automatic (i.e. without the need for further manual action) when the frangible element is broken or displaced

3.4.2
type B: indirect operation
a manual call point in which the change to the alarm condition requires a separate manual operation of the operating element by the user after the frangible element is broken or displaced

3.5
normal condition
the condition in which the frangible element is undamaged and the manual call point is operating without giving an alarm or fault signal

3.6
operating element
mechanical and electrical switching element, part of the manual call point which initiates the alarm signal when operated

3.7
operating face
that area of the manual call point which may be the visible part of the frangible element or the visible area behind it

NOTE See figures 1 and 2, item 2.

3.8
special tool
a device not normally carried by the public (e.g. a key), normally provided by the manufacturer and which is used for replacing or resetting the frangible element

NOTE It is intended to deter unauthorised access to the manual call point, while being available on site either at a defined location or from a "responsible person" familiar with and having knowledge of the system.

4 Requirements

4.1 Compliance

In order to comply with this standard the manual call point shall meet the requirements of this clause which shall be verified by visual inspection or engineering assessment, shall be tested as described in clause 5 and shall meet the requirements of the tests.

4.2 Marking and data

4.2.1 Marking

Each manual call point shall be permanently marked with the following information:

a) the number of this standard (i.e. EN 54-11);
b) the name or trademark of the manufacturer or supplier;
c) the model designation (type A or type B)
d) environment category (indoor / outdoor, special environmental conditions);
e) the wiring terminal designations;
f) any mark(s) or code(s) (e.g. serial number or batch code), by which the manufacturer can identify, at least, the date or batch and place of manufacture, and the version number(s) of any software, contained within the manual call point.

Where any marking on the manual call point uses symbols or abbreviations not in common use then these shall be explained in the data supplied with the device.

The marking shall be visible during installation of the manual call point and shall be accessible during maintenance.

The markings shall not be placed on screws or other easily removable parts.

4.2.2 Data

Manual call points shall either be supplied with sufficient technical, installation and maintenance data to enable their correct installation and operation or, if all of these data are not supplied with each manual call point, reference to the appropriate data sheet shall be given on, or with each manual call point.

To enable correct operation of the manual call points, these data shall describe the requirements for the correct processing of the signals from the manual call point. This may be in the form of a full technical specification of these signals, a reference to the appropriate signalling protocol or a reference to suitable types of control and indicating equipment etc.

NOTE Additional information may be required by organisations certifying that manual call points produced by a manufacturer conform to the requirements of this standard.

4.3 Frangible element

4.3.1 Normal condition

The normal condition shall be easily recognisable by the appearance of the operating face as detailed in 4.7. The frangible element shall be flat and shall not be broken, deformed or displaced.

4.3.2 Alarm condition

Transfer from the normal condition to the alarm condition shall be achieved by the following and shall be easily recognisable by the change in the appearance of the operating face:

a) for type A manual call points:
   1) breaking the frangible element or
   2) displacing the frangible element as a result of the breaking or
   3) displacing the frangible element without breaking together with changing the appearance of the operating face.

b) for type B manual call points:
   1) breaking and/or displacement of the frangible element as described in 4.3.2 a), to give access to the operating element and
   2) manual activation of the operating element.

In addition, for type B manual call points, it shall be possible to see that the operating element is in the activated position and it shall not be possible to activate the operating element without breaking or displacing the frangible element (see 4.3.2 b)) or without the use of a special tool (see 4.6)

4.4 Indicators for alarm condition

The alarm condition shall be indicated by:

a) for type A: the condition of the frangible element as specified in 4.3;
b) for type B: the frangible element as described in 4.3 together with an identifiable activated position of the operating element.

The alarm condition may be additionally indicated visually by other means, for example lamps or light-emitting diodes (LEDs).

If an additional visual indicator is provided, it shall be positioned within the operating face or within the front face of the manual call point. The visual indicator shall be red, shall identify the manual call point, which released an alarm, until the alarm condition is reset and shall be visible from a distance of 2 m directly in front of the manual call point, in an ambient light intensity up to 500 lx. Where other conditions of the manual call point may be visually indicated, they shall be clearly distinguishable from the alarm indication, except when the manual call point is switched into a service mode.

4.5 Reset facility

It shall only be possible to reset the manual call point after operation by means of a special tool as follows:

a) for non-resettable frangible elements by inserting a new element;
b) for resettable frangible elements by resetting the frangible element.

In addition, for type B manual call points, it shall only be possible to return the operating element to its normal condition by means of a special tool.

4.6 Test facility

The manual call point shall be equipped with a facility to carry out routine testing when installed. The operation of this test facility shall:

a) simulate the alarm condition by activating the operating element without breaking the frangible element; and
b) allow the manual call point to be reset without breaking the frangible element.

The operation of the test facility shall only be possible using a special tool.

4.7 Construction and design

4.7.1 Safety aspects

When operating the frangible element injury to the operator shall not occur.

For type B manual call points the actuation force of the operating element shall meet the requirements of EN 894-3 : 2000.

Corners and edges of the manual call points shall be rounded to reduce the possibility of injury, but the radius of curvature shall not exceed 0,05 a (see Table 1).

4.7.2 Shape, dimensions and colours

4.7.2.1 Shape

The front face of the manual call point shall be approximately square in accordance with Table 1.

The operating face shall either be square (see figure 1) or rectangular (see figure 2).

The operating face in accordance with Table 1, figure 1 and figure 2:

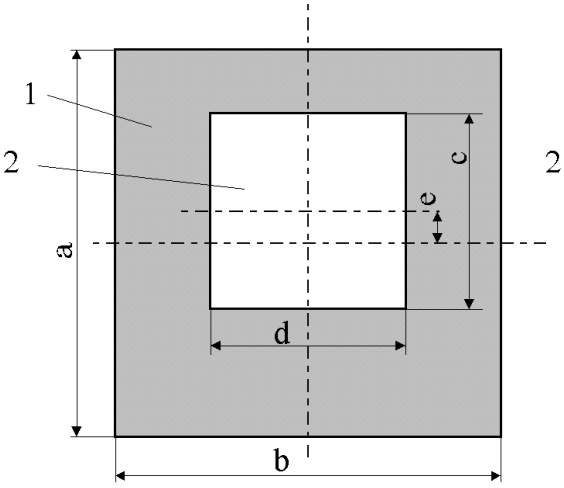
a) shall be central about the vertical centre line of the front face and
b) may be designed to have a vertical offset about the horizontal centre line of the front face.

The operating face shall be level with or recessed into the front face; it shall not project beyond the front face.

4.7.2.2 Dimensions

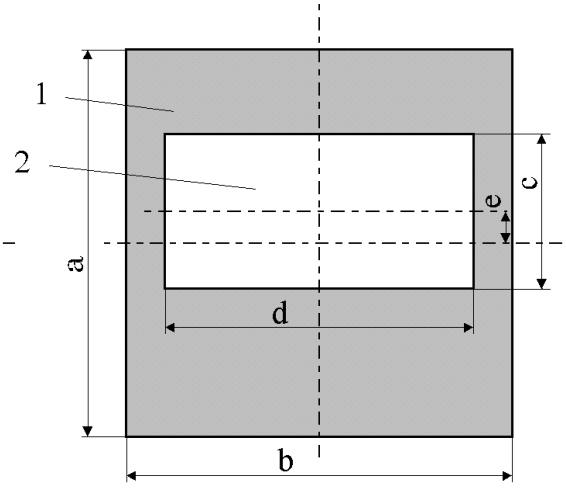
The dimensions of the front face and of the operating face shall be within the limits shown in figure 1, figure 2 and Table 1. A tolerance of ± 5 % may be applied where not otherwise specified.

The manual call point shall be designed so that it is capable of being mounted, in accordance with the manufacturer's instructions, with the front face at least 15 mm proud of the surrounding surface.



Key
1 front face
2 operating face
a to *e* see Table 1

Figure 1 - Manual call point with a square operating face



Key
1 front face
2 operating face
a to *e* see Table 1

Figure 2 - Manual call point with a rectangular operating face

Table 1 - Dimensions of manual call points

Dimension	Letter in figure 1 or figure 2	Manual call point with	
		square operating face	rectangular operating face
height of front face	*a*	85 mm ≤ *a* ≤ 135 mm	85 mm ≤ *a* ≤ 135 mm
width of front face	*b*	85 mm ≤ *b* ≤ 135 mm	85 mm ≤ *b* ≤ 135 mm
ratio of width to height of the front face	*b/a*	0,95 ≤ *b/a* ≤ 1,05	0,95 ≤ *b/a* ≤ 1,05
height of operating face	*c*	0,5 *a* ± 5 mm	0,4 *a* ± 5 mm
width of operating face	*d*	0,5 *a* ± 5 mm	0,8 *a* ± 5 mm
ratio of width to height of the operating face	*d/c*	0,95 ≤ *d/c* ≤ 1,05	1,9 ≤ *d/c* ≤ 2,1
maximum vertical offset of the operating face	*e*	± 0,1 *a*	± 0,1 *a*

4.7.2.3 Colours

The colour of the visible surface area of the manual call point when mounted in accordance with 5.1.3 shall be red, except for

a) the operating face;
b) the symbols and lettering on the front face specified in 4.7.3.2;
c) the special tool access, cable entry holes and screws.

The colour of the operating face other than symbols and lettering specified in 4.7.3.3 shall be white.

The colour of the visible part of the operating element (Type B manual call point) shall be black.

NOTE Suitable red, white and black colours are specified in ISO 3864.

4.7.3 Symbols and lettering

4.7.3.1 General

The manual call point shall be marked, with the appropriate symbols shown in figure 3, as specified in 4.7.3.2 and 4.7.3.3. Examples of the arrangement of symbols on type A and type B manual call points are given in figures 4 and 5 respectively.

4.7.3.2 Symbols and lettering on the front face

4.7.3.2.1 On the front face above the operating face and central to the vertical centre line shall be the symbol in accordance with figure 3a. This symbol may be supplemented with the word "FIRE", or equivalent words in the national language. This combination shall be on the front face and above the operating face and central to the vertical centre line. The height of the symbol shall be at least 0,15 a and the height of the lettering shall not exceed the height of the symbol. The lettering shall be in accordance with ISO 3098-0 : 1997, "lettering type B, vertical (V)". Symbols and lettering shall be white in accordance with ISO 3864 : 1984.

4.7.3.2.2 Markings other than specified in 4.7.3.2.1 (such as company logo or contact address) shall be restricted to the area of the front face below the horizontal centre line of the operating face. The total area for this marking other than red shall not be greater than 5% of the area of the front face.

4.7.3.3 Symbols and lettering on the operating face

4.7.3.3.1 The operating face of type A manual call points shall be marked with the symbol in accordance with figures 3c. The operating face of type B manual call points shall be marked with the symbols in accordance with figures 3b and 3d. The symbol in accordance with figure 3b shall point to the operating element and shall remain clearly visible when the frangible element is broken or displaced. These symbols may be supplemented by appropriate words for instruction. Where supplementary wording is used, this shall indicate position and/or operating action (e.g. "PRESS HERE").

These symbols and lettering for any supplementary instructions shall be black with the black area not exceeding 10% of the area of the operating face.

NOTE A suitable black colour is specified in ISO 3864 : 1984.

4.7.3.3.2 Markings other than specified in 4.7.3.3.1 (such as company logo or contact address) shall be restricted to the upper and/or the lower 25% of the area of the operating face and shall not interfere with the symbols. The total area for this marking other than white shall not be greater than 5% of the area of the operating face.