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Fire detection and fire alarm systems - Part 22:  
Resettable line-type heat detectors

## EESTI STANDARDI EESSÕNA

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See Eesti standard EVS-EN 54-22:2015 sisaldab Euroopa standardi EN 54-22:2015 ingliskeelset teksti.	This Estonian standard EVS-EN 54-22:2015 consists of the English text of the European standard EN 54-22:2015.
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ICS 13.220.20; 13.220.10

English Version

## Fire detection and fire alarm systems - Part 22: Resettable line-type heat detectors

Systèmes de détection et d'alarme incendie - Partie 22:  
DéTECTEURS de chaleur de type linéaire réenclenchables

Brandmeldeanlagen - Teil 22: Rücksetzbare linienförmige  
Wärmemelder

This European Standard was approved by CEN on 19 March 2015.

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COMITÉ EUROPÉEN DE NORMALISATION  
EUROPÄISCHES KOMITEE FÜR NORMUNG

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## Foreword

This document (EN 54-22:2015) 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of an identical text or by endorsement, at the latest by November 2015, and conflicting national standards shall be withdrawn at the latest by May 2019.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports the basic requirements of Regulation (EU) 305/2011.

For relationship with EU Directive(s), see informative Annex ZA which is an integral part of this document.

EN 54 "Fire detection and fire alarm systems" consists of the following parts:

Part 1: Introduction

Part 2: Control and indicating equipment

Part 3: Fire alarm devices – Sounders

Part 4: Power supply equipment

Part 5: Heat detectors – Point detectors

Part 7: Smoke detectors – Point detectors using scattered light, transmitted light or ionization

Part 10: Flame detectors – Point detectors

Part 11: Manual call points

Part 12: Smoke detectors – Line detector using an optical light beam

Part 13: Compatibility assessment of system components

Part 14: Guidelines for planning, design, installation, commissioning, use and maintenance

Part 15: Point detectors using a combination of detected phenomena

Part 16: Voice alarm control and indicating equipment

Part 17: Short circuit isolators

Part 18: Input/output devices

Part 20: Aspirating smoke detectors

Part 21: Alarm transmission and fault warning routine equipment

Part 22: Resettable line-type heat detectors

Part 23: Fire alarm devices – Visual alarms

Part 24: Components of voice alarm systems – Loudspeakers

Part 25: Components using radio links and system requirements

Part 26: Carbon monoxide detectors – Point detectors (in preparation)

Part 27: Duct smoke detectors (in preparation)

Part 28: Non-resettable line-type heat detectors (in preparation)

Part 29: Multi-sensor fire detectors - Point detectors using a combination of smoke and heat sensors

Part 30: Multi-sensor fire detectors - Point detectors using a combination of carbon monoxide and heat sensors

Part 31: Multi-sensor detector – Point detectors using a combination of smoke, carbon monoxide and optionally heat sensors

Part 32: Guidelines for the planning, design, installation, commissioning, use and maintenance of voice alarm systems

NOTE This list includes standards that are in preparation and other standards may be added. For current status of published standards refer to [www.cen.eu](http://www.cen.eu).

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

## Introduction

Resettable line-type heat detectors (RLTHD) have been incorporated into fire alarm systems for a considerable number of years. These detectors are typically used in areas where point type heat detectors are presented with challenging environmental characteristics and also where access to the detectors may significantly influence the fire alarm system design.

This standard defines the minimum system functionality for RLTHD products. RLTHD are based upon many unique operating principles. It is the intention of this standard to define common operating characteristics for each type of RLTHD in conjunction with existing EN 54 detector standards, so that resettable line-type heat detectors have a response behaviour comparable to that of point type heat detectors.

Due to the various applications for RLTHD, it is necessary to devise separate environmental classification tests for the sensing element and the sensor control units of these systems. It is not the purpose of this standard to define applications or how RLTHD should be used in applications. However, the standard indicates two general fields of application, room protection and secondly local protection. The standard defines separate response test classifications for these two fields.

Generally there are two functional principles employed by RLTHD: non-integrating and integrating systems. Therefore separated subclasses have been created for non integrating systems and for integrating systems.



# 1 Scope

This European Standard applies to resettable line-type heat detectors consisting of a sensing element using an optical fibre, a pneumatic tube or an electrical sensor cable connected to a sensor control unit, either directly or through an interface module, intended for use in fire detection and fire alarm systems installed in and around buildings and other civil engineering works (see EN 54-1:2011).

This European Standard specifies the requirements and performance criteria, the corresponding test methods and provides for the Assessment and Verification of Constancy of Performance (AVCP) of resettable line-type heat detectors to this EN.

This European Standard also covers resettable line-type heat detectors intended for use in the local protection of plant and equipment.

Resettable line-type heat detectors with special characteristics and developed for specific risks are not covered by this EN.

This European Standard does not cover line-type heat detectors that are based on non-resettable, fixed temperature electrical cables (so called "digital" systems).

# 2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 54-1:2011, *Fire detection and fire alarm systems — Part 1: Introduction*

EN 54-7:2000, *Fire detection and fire alarm systems — Part 7: Smoke detectors — Point detectors using scattered light, transmitted light or ionization*

EN 50130-4:2011, *Alarm systems — Part 4: Electromagnetic compatibility — Product family standard: Immunity requirements for components of fire, intruder, hold up, CCTV, access control and social alarm systems*

EN 60068-1:1994, *Environmental testing — Part 1: General and guidance (IEC 60068-1:1988 + Corrigendum 1988 + A1:1992)*

EN 60068-2-1:2007, *Environmental testing — Part 2-1: Tests — Test A: Cold (IEC 60068-2-1:2007)*

EN 60068-2-2:2007, *Environmental testing — Part 2-2: Tests — Test B: Dry heat (IEC 60068-2-2:2007)*

EN 60068-2-27:2009, *Environmental testing — Part 2-27: Tests — Test Ea and guidance: Shock (IEC 60068-2-27:2009)*

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

EN 60068-2-42:2003, *Environmental testing — Part 2-42: Tests — Test Kc: Sulphur dioxide test for contacts and connections (IEC 60068-2-42:2003)*

EN 60068-2-6:2008, *Environmental testing — Part 2-6: Tests — Test Fc: Vibration (sinusoidal) (IEC 60068-2-6:2008)*

EN 60068-2-75:1997, *Environmental testing — Part 2-75: Tests — Test Eh: Hammer tests (IEC 60068-2-75:1997)*

EN 60068-2-78:2001, *Environmental testing — Part 2-78: Tests — Test Cab: Damp heat, steady state (IEC 60068-2-78:2001)*

### 3 Terms, definitions and abbreviations

For the purposes of this document the terms and definitions given in EN 54-1:2011 and the following apply.

#### 3.1 Terms and definitions

##### 3.1.1

##### **functional unit**

part of a line-type heat detector in addition to the sensor control unit and the sensing element which is essential for the function of the line-type heat detector

EXAMPLE Terminating device, filter, switch.

##### 3.1.2

##### **integrating line-type heat detector**

detectors for which the response to temperature is summed in some way, (not necessarily linearly), along a length of the sensing element. For such detectors, the output to the sensor control unit is therefore a function of the temperature distribution along the length of the sensing element

EXAMPLE Pneumatic systems.

##### 3.1.3

##### **linear line-type heat detector**

detectors which respond to heat applied to any point along the length of the sensing element

##### 3.1.4

##### **line-type heat detector**

##### **LTHD**

detector which responds to heat sensed in the vicinity of a continuous line

Note 1 to entry: A line-type heat detector may consist of a sensor control unit, a sensing element and functional units.

##### 3.1.5

##### **local protection application**

application in which the sensing element is installed in relatively close proximity to the potential fire risk

EXAMPLE pipelines, conveyor belts, combustion engines/turbines, rolling stock, transformers, process dryers, cable trays, escalators, chemical process equipment, electrical equipment cabinets, ventilation systems (dust collector, hood extractor, etc.), switch gear (e.g. printing press), etc.

##### 3.1.6

##### **multipoint line-type heat detector**

detectors that contain multiple discrete temperature sensors, which are separated by a distance of no more than 10 m, embedded within the sensing element (see 3.1.11)

##### 3.1.7

##### **non-resettable line-type heat detectors**

##### **NLTHD**

LTHD which can only respond once

##### 3.1.8

##### **non-integrating line-type heat detector**

detectors for which the output signal is depending on local temperature effects but not on the integration of the whole temperature distribution along the sensing element